



Cairo University



Cairo University International Publications Awards

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International Publications Awards

Cairo University



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Dear colleagues,

We are pleased to introduce vol. 10(2) issue of the international publications of Cairo University. It is a further step and distinct contribution, reflecting the scientific ability of staff members, which conforms to international quality standards.

The purpose of issuing these publications is mainly to introduce this work to the academic community, demonstrate the different research abilities of CairoUniversity researchers, and encourage them to increase the quality and quantity of their research.

We would like to assure you that the administration will spare no effort to support and reinforce these goals.

We congratulate all colleagues who were granted the awards for their international publications of the year 2015 and wish them all the best for their future endeavors.

We are also pleased to inform you that this policy will continue to be in effect for the years to come.

Prof. Amr adly

**Vice - President for post-graduate
studies and research
Cairo university**

Prof. Gaber Nassar

**President
Cairo university**

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CAIRO UNIVERSITY

Publication
in
Journals



Cairo University

International Publications Awards

Cairo University



(1)

Basic

Sciences Sector

- 1-1 Faculty of Science**
- 1-2 Faculty of Agriculture**
- 1-3 Faculty of Veterinary Medicine**
- 1-4 National Institute of Laser Enhanced Sciences**

Total No. of Publication for Basic Sciences Sector

Faculty	2006	2007	2008	2009	2010
Science	142	162	241	242	290
Agriculture	8	14	35	83	75
Veterinary Medicine	11	20	47	53	86
National Institute of Laser Sciences	13	11	9	21	27
Total	174	207	332	399	478

Faculty	2011	2012	2013	2014	2015	Total
Science	387	447	509	435	619	
Agriculture	136	148	128	52	81	
Veterinary Medicine	136	95	118	71	137	
National Institute of Laser Sciences	33	26	32	29	50	
Total	692	716	787	587	887	

Faculty of Science

Dept. of Astronomy and Meteorology

1-The Physics and Kinematics of the Evolved, Interacting Planetary Nebula PN G342.0-01.7

A. Ali, M. A. Amer, M. A. Dopita, F. P. A. Vogt and H. M. Basurah

Astronomy and Astrophysics, 583 (2015) IF: 4.378

Integral field spectroscopy has been obtained for very few evolved planetary nebulae (PNe). Here we aim to study the physical and kinematical characteristics of the unstudied old planetary nebula PN G342.0-01.7, which shows evidence of interaction with its surrounding interstellar medium. We used integral field spectra from the Wide Field Spectrograph on the ANU 2.3 m telescope to provide spectroscopy across the whole object covering the spectral range 3400-7000 Å. We formed narrow-band images to investigate the excitation structure. The spectral analysis shows that the object is a distant Peimbert Type I planetary nebula (PN) of low excitation, formally of excitation class of 0.5. The low electron density, high dynamical age, and low surface brightness of the object confirm that it is observed fairly late in its evolution. It shows clear evidence for dredge-up of CN-processed material characteristic of its class. In addition, the low peculiar velocity of 7 km s^{-1} shows it to be a member of the young disk component of our Galaxy. We further determined an average expansion velocity of $V_{\text{exp}} = 20.2 \pm 1.3 \text{ km s}^{-1}$, a local standard of rest radial velocity $\text{RVLSR} = -27.7 \pm 1.7 \text{ km s}^{-1}$, and a distance of $2.06 \pm 0.6 \text{ kpc}$ for the object. We built a self-consistent photoionisation model for the PN matching the observed spectrum, the H β luminosity, and the diameter. On the basis of this we derive an effective temperature $\log T_{\text{eff}} = 5.05$ and luminosity $1.85 < \log L < 2.25$. The temperature is much higher than might have been expected using the excitation class, proving that this can be misleading in classifying evolved PNe. PN G342.0-01.7 is in interaction with its surrounding interstellar medium through which the object is moving in the south-west direction. This interaction drives a slow shock into the outer PN ejecta. A shock model suggests that it only accounts for about 10% of the total luminosity, but has an important effect on the global spectrum of the PN.

Keywords: Planetary nebulae; Individual; PN G342.0-01.7.**2- A New Statistical Distance Scale for Planetary Nebulae**

Alaa Ali, H.A. Ismail and Z. Alsolami

Astrophysics and Space Science, 357:21: 1-17 (2015) IF: 2.263

In the first part of the present article we discuss the consistency among different individual distance methods of Galactic planetary nebulae, while in the second part we develop a new statistical distance scale based on a calibrating sample of well determined distances. A set composed of 315 planetary nebulae with individual distances are extracted from the literature. Inspecting the data set indicates that the accuracy of distances is varying among different individual methods and also among different sources where the same individual method was applied. Therefore, we derive a reliable weighted mean distance for each object by considering the influence of the distance error and the weight of each individual method. The results reveal that the discussed individual methods are consistent with each other,

except the gravity method that produces higher distances compared to other individual methods. From the initial data set, we construct a standard calibrating sample consists of 82 objects. This sample is restricted only to the objects with distances determined from at least two different individual methods, except few objects with trusted distances determined from the trigonometric, spectroscopic, and cluster membership methods. In addition to the well determined distances for this sample, it shows a lot of advantages over that used in the prior distance scales. This sample is used to recalibrate the mass-radius and radio surface brightness temperature-radius relationships. An average error of similar to % 30 is estimated for the new distance scale. The newly distance scale is compared with the most widely used statistical scales in literature, where the results show that it is roughly similar to the majority of them within similar to $\pm 20\%$ difference. Furthermore, the new scale yields a weighted mean distance to the Galactic center of $7.6 \pm 1.35 \text{ kpc}$, which in good agreement with the very recent measure of Malkin 2013.

Keywords: Planetary nebulae; General; Distances.

Dept. of Biophysics

3- The RNF138 E3 Ligase Displaces Ku to Promote DNA end Resection and Regulate DNA Repair Pathway Choice

Ismail IH, Gagné JP, Genois MM, Strickfaden H, Darin McDonald, Zhizhong Xu, Guy G. Poirier, Jean-Yves Masson, and Michael J. Hendzel

Nature Cell Biology, 17(11): 1446-1457 (2015) IF: 19.679

DNA double-strand breaks (DSBs) are repaired mainly by non-homologous end joining or homologous recombination (HR). Cell cycle stage and DNA end resection are believed to regulate the commitment to HR repair. Here we identify RNF138 as a ubiquitin E3 ligase that regulates the HR pathway. RNF138 is recruited to DNA damage sites through zinc fingers that have a strong preference for DNA with 5'- or 3'-single-stranded overhangs. RNF138 stimulates DNA end resection and promotes ATR-dependent signalling and DSB repair by HR, thereby contributing to cell survival on exposure to DSB-inducing agents. Finally, we establish that RNF138-dependent Ku removal from DNA breaks is one mechanism whereby RNF138 can promote HR. These results establish RNF138 as an important regulator of DSB repair pathway choice.

Keywords: DNA repair; RNF138; DNA end resection; DNA damage.**4- Bioactivation of Luteolin by Tyrosinase Selectively Inhibits Glutathione S-Transferase**

Rajiv Balyan, Shashi K. Kudugunti, Hamzah A. Hamad, Mohammad S. Yousef and Majid Y. Moridani

Chemico-Biological Interactions, 240: 208-218 (2015) IF: 2.577

Glutathione S-transferase (GST) plays a significant role in the metabolism and detoxification of drugs used in treatment of melanoma, resulting in a decrease in drug efficacy. Tyrosinase is an abundant enzyme found in melanoma. In this study, we used a tyrosinase targeted approach to selectively inhibit GST. In the

presence of tyrosinase, luteolin (10 μM) showed 87% GST inhibition; whereas in the absence of tyrosinase, luteolin led to negligible GST inhibition. With respect to GSH, both luteolin-SG conjugate and luteolin-quinone inhibited =90% of GST activity via competitive reversible and irreversible mixed mechanisms with K_i of 0.74 μM and 0.02 μM , respectively. with respect to CDNB, the luteolin-SG conjugate inhibited GST activity via competitive reversible mechanism and competitively with K_i of 0.58 μM , whereas luteolin-quinone showed irreversible mixed inhibition of GST activity with K_i of 0.039 μM . Luteolin (100 μM) inhibited GST in mixed manner with K_i of 53 μM with respect to GSH and non-competitively with respect to CDNB with K_i of 38 μM . Luteolin, at a concentration range of 5–80 μM , exhibited 78–99% GST inhibition in human SK-MEL-28 cell homogenate. Among the 3 species of intact luteolin, luteolin-SG conjugate, and luteoline-quinone, only the latter two have potential as drugs with $K_i < 1 \mu\text{M}$, which is potentially achievable in-vivo as therapeutic agents. The order of GST inhibition was luteolin-quinone \gg luteolin-SG conjugate \gg luteolin. In summary, our results suggest that luteolin was bioactivated by tyrosinase to form a luteolin-quinone and luteolin-glutathione conjugate, which inhibited GST. For the first time, in addition to intracellular GSH depletion, we demonstrate that luteolin acts as a selective inhibitor of GST in the presence of tyrosinase. Such strategy could potentially be used to selectively inhibit GST, a drug detoxifying enzyme, in melanoma cells.

Keywords: Luteolin; Melanoma; SK-MEL - 28 Cancer; Quinone; Glutathione; GST.

5- Nigella Sativa Amliorates Inflammation and Demyelination in the Experimental Autoimmune Encephalomyelitis-Induced Wistar Rats

Noor N. A, Fahmy H. M, Mohammed F.F, Elsayed A. A and Radwan N. M.

International Journal of Clinical and Experimental Pathology, 8 (6): 6269-6286 (2015) IF: 1.891

Multiple sclerosis (MS) is the major, immune-mediated, demyelinating neurodegenerative disease of the central nervous system (CNS). Experimental autoimmune encephalomyelitis (EAE) is a well-established animal model of MS. The aim of the present study was to investigate the protective and ameliorative effects of *N. sativa* seeds (2.8 g/kg body weight) in EAE-induced Wistar rats. EAE-induced rats were divided into: 1- EAE-induced rats ("EAE" group). 2- "*N. sativa* + EAE" group received daily oral administration of *N. sativa* 2 weeks prior EAE induction until the end of the experiment. 3- "*EAE + N. sativa*" group received daily oral administration of *N. sativa* after the appearance of first clinical signs until the end of the experiment. All animals were decapitated at the 28th day post EAE-induction. EAE was investigated using histopathological, immunohistochemical and ultrastructural examinations in addition to determination of some oxidative stress parameters in the cerebellum and medulla. *N. sativa* suppressed inflammation observed in EAE-induced rats. In addition, *N. sativa* enhanced remyelination in the cerebellum. Moreover, *N. sativa* reduced the expression of transforming growth factor beta 1 (TGF- β 1). *N. sativa* seeds could provide a promising agent effective in both the protection and treatment of EAE.

Keywords: Experimental autoimmune encephalomyelitis (eae); Multiple sclerosis (Ms); *Nigella sativa* (*N. sativa*); Transforming growth factor beta 1 (TGF- β 1); Oxidative stress.

Dept. of Botany

6- Enhancement of Chromium Removal from Industrial Effluent Drain by *Pseudomonas Fluorescens* SC106 and *Bacillus Subtilis* SC106 Consortia

Youssef A. Mawgoud

Romanian Biotechnological Letters, 20 (5): 10863-10870 (2015) IF: 0.404

Two bacterial strains capable to remove chromium (Cr VI) ions from tanneries effluent were isolated from contaminated soil in the present work and identified as *Pseudomonas fluorescens* SC106 and *Bacillus subtilis* SC106. The isolates are capable to remedy Cr (VI) as mono cultures and in consortia and their efficiencies were compared. Agarose gel analysis revealed that the resistance gene is a chromosomal gene in *Pseudomonas fluorescens* SC106 and a plasmid-borne gene in *Bacillus subtilis* SC106 (about 24 kb). The isolates were examined for their tolerance to hexavalent chromium and their ability to reduce Cr (VI) to Cr (III). Utilization of Cr (VI) reducing microbial consortium has enhanced the efficiency of the process of detoxification of Cr (VI) to Cr (III). The results indicate that the microbial consortia and the mono cultures of the above isolates can be useful for Cr (VI) detoxification of chromium contaminated environment. Before remediation, the chromium content of the effluent was 570 mgL^{-1} , after which, it reduced to 2.8 – 6.3 mgL^{-1} . The superlative removal activity was observed by immobilized beads consortia of *P. fluorescens* SC106 and *B. subtilis* SC106 (99.63%).

Keywords: Chromium; *Pseudomonas*; *Bacillus*; Industrial drain; Microbial consortium.

Dept. of Chemistry

7- Electropolymerization of Diaminofluorene and its Electrochemical Properties

F.A. Asswadi, U.S. Yousef, A.S. Hathoot, M. Abdel Azzem and A. Galal

Arabian Journal of Chemistry, 8: 433-441 (2015) IF: 3.725

Poly 2,7-diaminofluorene (PDAF)/Au modified electrode was prepared using 2,7-diaminofluorene (DAF) dissolved in acetonitrile (ACN) containing 0.1 M LiClO_4 using consecutive multisweep cyclic voltammetry (CV) and controlled potential electrolysis (CPE) techniques. Factors affecting the film formation, such as limits of potential cycling, sweep rate, number of sweeping cycles, monomer concentration, and also polymerization techniques were examined in detail. It was found that the optimum conditions, using a potentiodynamic technique on Au electrode as the working electrode, are by sweeping the potential between –200 mV and 800 mV at a sweep rate of 50 mV/s for 10 cycles using 5 mM DAF monomer solution. The obtained modified electrode was active only in acidic aqueous solutions (pH range from 0 to 2) and its activity was found to be pH dependent. PDAF was isolated and characterized using UV–

vis, ¹HNMR and SEM analyses. The electrical conductivity was found to be $1.5 \times 10^{-5} \text{ cm}^{-1}$. An electro-polymerization mechanism was proposed and discussed based on the obtained experimental data and molecular orbital calculations. The obtained modified electrode has been found to improve the electrochemical reversibility and decrease the overpotential of hydroquinone. PDAF/Au was stable chemically and electrochemically both in aqueous and organic solutions, making it an excellent candidate for sensing and/or electro-catalytic applications.

Keywords: Electrochemical polymerization; Cyclic voltammetry; Conducting polymer; Electrocatalysis.

8- Synthesis, DNA Binding and Complex Formation Reactions of 3-Amino-5,6-Dimethyl-1,2,4-Triazine with Pd(II) and Some Selected Biorelevant Ligands

Azza A. Shoukry and Reem M. Alghanmi

Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy, 138: 932-941 (2015) IF: 2.353

$[\text{Pd}(\text{ADT})(\text{OH}_2)_2]^{2+}$ where, (ADT = 3-amino-5,6-dimethyl-1,2,4-triazine) has been synthesized and characterized on the basis of elemental analysis. Stoichiometry and stability constants of the complexes formed between various biologically relevant ligands were investigated at 25 °C and at constant 0.1 mol dm^{-3} ionic strength. The concentration distribution diagrams of the various species formed are evaluated. Further investigation of the binding properties of the diaqua complex $[\text{Pd}(\text{ADT})(\text{H}_2\text{O})_2]^{2+}$ with calf thymus DNA (CT-DNA) was investigated by UV-vis spectroscopy. The intrinsic binding constants (K_b) calculated from UV-vis absorption studies was calculated to be $2.0 \times 10^{-3} \text{ mol dm}^{-3}$. The calculated binding strength (K_b) to CT-DNA was estimated to be of lower magnitude than that of the classical intercalator EB (Ethidium bromide) ($K_b = 1.23 \times 10^5 \text{ mol dm}^{-3}$) supporting the electrostatic and/or groove binding mode.

Keywords: Palladium(II); 3-Amino-5,6-dimethyl-1,2,4-triazine; Biorelevant ligands.

9- Synergistic Effect of Maleimido Phenyl Urea Derivatives Mixed with Some Commercial Stabilizers on the Efficiency of Thermal Stabilization of PVC

Nadia A. Mohamed, Nahed A. Abd El-Ghany, Mona M. Fahmy and Marwa H. Ahmed

Polymer Testing, 44: 66-71 (2015) IF: 2.24

Four novel antimicrobial maleimido phenyl urea stabilizers 1e4 were synthesized from N- [4-(chlorocarbonyl) phenyl] maleimide with phenyl urea and its derivatives (p-methyl, ochloro and p-carboxy). The effect of mixing maleimido phenyl urea stabilizer 2 with each of the reference stabilizers, dibasic lead carbonate (DBLC), cadmium-barium-zinc stearate (Cd-Ba-Zn stearate) or n-octyltin mercaptide (n-OTM), on the stabilization efficiency in thermal degradation of rigid PVC at 180 °C in air, has been investigated. Mixing was effected in the range of 0e100 wt% of stabilizer 2 relative to each of the reference stabilizers. The stabilizing efficiency was evaluated by measuring the length of the thermal stability period (T_s), the period during which no detectable amount of hydrogen chloride gas could be observed, and also from the rate of

dehydrochlorination as measured by continuous potentiometric determination, and by the extent of discoloration of the degraded polymer samples. The results show a true synergistic effect from the combination of stabilizer 2 with any of the reference stabilizers. Mixing of the stabilizers improves the T_s values, decreases the rate of dehydrochlorination and lowers the extent of discoloration of the polymer. The maximum synergism was attained when stabilizer 2 is mixed with either of the three reference stabilizers in equivalent weight ratio (50%/50%). The observed synergism may be attributed to the different mechanisms by which the investigated and the reference stabilizers work

Keywords: PVC; Mixed stabilizers; Dehydrochlorination rate; Discoloration degree; Synergistic effect.

10- Solution Equilibria of Binary and Ternary Complexes Involving Zinc(II) with 2,6-Diaminopyridine and Various Biologically Relevant Ligands

Azza A. Shoukry and Saedah R. Al-Mhayawi

Journal of Solution Chemistry, 44: 2073-2089 (2015) IF: 1.177

The complexing properties of 2,6-diaminopyridine (DAP) with zinc(II) were investigated pH-metrically at 25 °C and at ionic strength of 0.1 mol dm^{-3} (NaNO_3). Binary and ternary complexes of Zn(II) involving DAP and various biologically relevant ligands containing different functional groups are investigated. The ligands used (L) are amino acids, dicarboxylic acids, amides and DNA unit constituents. The ternary complexes are formed by simultaneous reactions. The results showed the formation of $\text{Zn}(\text{DAP})(\text{L})$ complexes with amino acids and dicarboxylic acids. Amides form both $\text{Zn}(\text{DAP})(\text{L})$ complexes and the corresponding deprotonated amide species $\text{Zn}(\text{DAP})(\text{LH}^-)$. The concentration distributions of the various complex species formed in solution were also evaluated as a function of pH. The effect of dioxane as a solvent on the protonation constant of DAP and the formation constants of $\text{Zn}(\text{II})$ -DAP complexes were discussed. The effect of ionic strength on the protonation constants of DAP is also evaluated.

Keywords: Zinc (II); 2,6-Diaminopyridine; Bioactive ligands; Stability constant; Effect of solvent; Effect of ionic strength.

11- Facile Synthesis of Some New Pyrazole-Based 2-Thioxo-4-Thiazolidinone

Nadia Hanafy Metwally and Ibrahim Adel El-Doseky

Synthetic Communications, 45: 1-8 (2015) IF: 0.929

5-Ethoxymethylene-2-thioxo-4-thiazolidinone (1) reacts with hydrazine hydrate at room temperature to afford 5-(hydrazinylmethylene)-2-thioxo-4-thiazolidinone (3). Compound 3 condensed with different aromatic aldehydes 6a-d in ethanol in the presence of a few drops of piperidine to give the corresponding Schiff's bases 7a-d. On the other hand, compound 3 reacts with o-hydroxybenzaldehyde derivatives 8a and 8b in refluxing ethanol catalyzed by a few drops of piperidine to yield 1H-inadazolyl-2-thioxo-4-thiazolidinones 9a and 9b. Reaction of compound 3 with α-ketoesters 10a and 10b or α-diketones 10c-e in refluxing glacial acetic acid furnished the pyrazolyl-2-thioxo-4-thiazolidinone derivatives 11a-e. Also, compound 3 reacts with some different enaminones 12a-f in

refluxing glacial acetic acid to afford the new pyrazolyl-2-thioxo-4-thiazolidinone derivatives 13a–f. Pyrazoles 15a–d was obtained via reaction of compound 3 with chalcones 14a–d in dimethylformamide (DMF). The structures of all the newly synthesized products were confirmed on the basis of their elemental and spectral data, and a plausible mechanism has been postulated to account for their formation.

Keywords: 5-Ethoxymethylene-2-thioxo-4-thiazolidinone; 5-Hydrazinylmethylene-2-thioxo-4-thiazolidinone; 5-Pyrazolyl-2-thioxo-4-thiazolidinones.

12- Raman Spectroscopy in Lithium-oxygen Battery Systems

Forrest S. Gittleson, Koffi P. C. Yao, David G. Kwabi, Sayed Youssef Sayed, Won- Hee Ryu, Yang Shao-Horn and Andre D. Taylor

Chem Electro Chem, 1446 – 1457 (2015)

Electrochemical processes in lithium–oxygen (Li–O₂ or Li–air) batteries are complex, with chemistry depending on cycling conditions, electrode materials and electrolytes. In non-aqueous Li–O₂ cells, reversible lithium peroxide (Li₂O₂) and irreversible parasitic products (i.e., LiOH, Li₂CO₃, Li₂O) are common. Superoxide intermediates (O₂^{•−}, LiO₂) contribute to the formation of these species and are transiently stable in their own right.

While characterization techniques like XRD, XPS and FTIR have been used to observe many Li–O₂ species, these methods are poorly suited to superoxide detection. Raman spectroscopy, however, may uniquely identify superoxides from O–O vibrations.

The ability to fingerprint Li–O₂ products in situ or ex situ, even at very low concentrations, makes Raman an essential tool for the physicochemical characterization of these systems.

This review contextualizes the application of Raman spectroscopy and advocates for its wider adoption in the study of Li–O₂ batteries.

Dept. of Entomology

13- Effects of Bacillus Thuringiensis and Nuclear Polyhedrosis Virus on Some Biological Aspects and Metamorphosis of the Cotton Leafworm, Spodoptera Littoralis (Boisd)

Essa, N. M. Hanaa A. El-Sherif and Nahla M. abd El-Aziz

Egyptian Journal of Biological Pest Control, 25: 463-469 (2015) IF: 0.273

Nuclear polyhedrosis virus (NPV) and *Bacillus thuringiensis* (Bt) are used as safe and new control measures for combating agricultural insect pests instead of the synthetic insecticides. Thus, the current investigation was designed to determine the fecundity and fertility of *Spodoptera littoralis* when the second, third and fourth larval instars were treated with Bt (LC₄₀) and NPV (LC₄₀), as single treatment, and with a mixture of LC₂₀ Bt and LC₂₀ NPV, as combined treatment. The results showed that both single and combined treatments were significantly decreased the fecundity and fertility with the highest change in case of combined treatment. Third larval instar is the most resistance stage toward Bt and NPV treatments. Several

deformities in larvae pupae and moth populations appeared due to the treatment of bio-agents.

Keywords: *Bacillus thuringiensis*; Baculoviruses; Fecundity; Fertility; Metamorphosis; *Spodoptera littoralis*.

14- Influence of Abamectin on Some Inorganic Ions in The Hemolymph of the Cotton Leafworm, Spodoptera Littoralis (Biosd)

Nahla M. Abd El-Aziz and Nedat M. Fahmy

Egyptian Journal of Biological Pest Control, 25: 421-426 (2015) IF: 0.273

A quantification of the main important inorganic ions; sodium, potassium, chloride and phosphate in the hemolymph of the cotton leaf worm, *Spodoptera littoralis* (Biosd.) during 4th and 5th larval instars was carried out. Treatment with abamectin resulted in significant increase in sodium ion concentrations reaching its maximum level on the 3rd post-treatment. Also, phosphate ions increased significantly at all time intervals except on the 7th day it showed no change, while potassium ions decreased significantly only on the 1st day post-treatment. Chloride ions nearly remained constant as compared to untreated control larval hemolymph at all time intervals. The ratio of Na⁺/K⁺ increased in the hemolymph of the abamectin-treated larvae as compared with that of the control. In general, abamectin showed its maximum effect after the 3rd day post treatment in most cases.

Keywords: Inorganic ions; *Spodoptera littoralis*; Abamectin.

Dept. of Geophysics

15- Three Least-Squares Minimization Approaches to Interpret Gravity Data Due to Dipping Faults

E. M. Abdelrahman and K. S. Essa

Pure and Applied Geophysics, 172 (2): 427-438 (2015) IF: 1.618

We have developed three different least-squares minimization approaches to determine, successively, the depth, dip angle, and amplitude coefficient related to the thickness and density contrast of a buried dipping fault from first moving average residual gravity anomalies. By defining the zero-anomaly distance and the anomaly value at the origin of the moving average residual profile, the problem of depth determination is transformed into a constrained nonlinear gravity inversion. After estimating the depth of the fault, the dip angle is estimated by solving a nonlinear inverse problem. Finally, after estimating the depth and dip angle, the amplitude coefficient is determined using a linear equation. This method can be applied to residuals as well as to measured gravity data because it uses the moving average residual gravity anomalies to estimate the model parameters of the faulted structure. The proposed method was tested on noise-corrupted synthetic and real gravity data. In the case of the synthetic data, good results are obtained when errors are given in the zero-anomaly distance and the anomaly value at the origin, and even when the origin is determined approximately. In the case of practical data (Bouguer anomaly over Gazal fault, south Aswan, Egypt), the fault parameters obtained are in good agreement with the actual ones and with those given in the published literature.

Keywords: Gravity dipping faults; Depth; Dip angle and amplitude coefficient solutions; Moving average method; Three least-squares methods.

16- A New Method for Depth and Shape Determinations from Magnetic Data

E. M. Abdelrahman and K. S. Essa

Pure and Applied Geophysics, 172: 439-460 (2015) IF: 1.618

We present in this paper a new formula representing the magnetic anomaly expressions produced by most geological structures. Using the new formula we developed a simple and fast numerical method to determine simultaneously the depth and shape of a buried structure from second-horizontal derivative anomalies obtained from magnetic data with filters of successive window lengths. The method involves using a nonlinear relationship between the depth to the source and the shape factor and a combination of observations at four points with respect to the coordinate of the source center with a free parameter (window length). The relationship represents a parametric family of curves (window curves). For a fixed free parameter, the depth is determined for each shape factor. The computed depths are plotted against the shape factors representing a continuous monotonically increasing curve. The solution for the shape and depth of the buried structure is read at the common intersection of the window curves. This method can be applied to residuals as well as to the observed magnetic data consisting of the combined effect of a local structure and a second-order regional or less. The method is applied to synthetic data with and without random errors and tested on three field examples from India, Brazil and the USA. In all cases the shape and depth of the buried structures are in good agreement with the actual ones.

Keywords: Magnetic data; New formula; Interpretation, Window curves method; Noise.

Dept. of Mathematics

17- Numerical Studies for Variable Order Linear and Nonlinear Fractional Cable Equation

N. H. Sweilam, M. Adel, A. F. Saadallah, and T. M. Soliman

Journal of Computational and Theoretical Nanoscience, 12: 1-8 (2015) IF: 1.343

A numerical simulation for the variable order linear and nonlinear fractional Cable equation is introduced by Weighted average finite difference method. Special attention is given to study the stability analysis of the proposed methods (WAFDM). A simple and accurate stability criterion valid for different discretization schemes of the variable order fractional derivative and arbitrary weight factor is introduced. Finally, the results of a numerical examples support the theoretical analysis.

Keywords: Weighted average finite difference; Variable-order linear and nonlinear cable equation; Variable-order riemann-liouville fractional partial derivative; Stability analysis.

Dept. of Physics

18- Measurement of the Cross Section Ratio $\sigma_{tbb}/\sigma_{tjj}$ in pp Collisions at $\sqrt{s}=8\text{TeV}$

Khachatryan, Vardan Sirunyan, Albert M. Tumasyan, Armen Adam, Wolfgang Bergauer and Thomas

Physics Letters B, (746) 132-153 (2015) IF: 6.131

The first measurement of the cross section ratio $\sigma_{tbb}/\sigma_{tjj}$ is presented using a data sample corresponding to an integrated luminosity of 19.6 fb^{-1} collected in pp collisions at $\sqrt{s}=8\text{ TeV}$ with the CMS detector at the LHC. Events with two leptons (e or μ) and four reconstructed jets, including two identified as b quark jets, in the final state are selected. The ratio is determined for a minimum jet transverse momentum p_T of both 20 and 40 GeV/c. The measured ratio is 0.022 ± 0.003 (stat) ± 0.005 (syst) for $p_T > 20\text{ GeV/c}$. The absolute cross sections σ_{tbb} and σ_{tjj} are also measured. The measured ratio for $p_T > 40\text{ GeV/c}$ is compatible with a theoretical quantum chromodynamics calculation at next-to-leading order.

Keywords: Hadron-hadron scattering; Lepton production; B quark.

19- Searches for Supersymmetry Based on Events with B Jets and Four W Bosons in PP Collisions at 8 TeV

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Five mutually exclusive searches for supersymmetry are presented based on events in which b jets and four W bosons are produced in proton-proton collisions at $\sqrt{s}=8\text{ TeV}$. The data, corresponding to an integrated luminosity of 19.5^{-1} , were collected with the CMS experiment at the CERN LHC in 2012. The five studies differ in the leptonic signature from the W boson decays, and correspond to all-hadronic, single-lepton, opposite-sign dilepton, same-sign dilepton, and ≥ 3 lepton final states. The results of the five studies are combined to yield 95% confidence level limits for the gluino and bottom-squark masses in the context of gluino and bottom-squark pair production, respectively. In the limit when the lightest supersymmetric particle is light, gluino and bottom squark masses are excluded below 1280 and 570 GeV, respectively.

Keywords: CMS; Physics; Supersymmetry.

20- Measurement of the $pp \rightarrow ZZ$ Production Cross Section and Constraints on Anomalous Triple Gauge Couplings in Four-Lepton Final States at $\sqrt{s}=8\text{ TeV}$

Ali Yehia Ellithi Kamel, W. Adam, T. Bergauer, M. Dragicevic, J. Erö and C. Fabjan

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A measurement of the inclusive ZZ production cross section and constraints on anomalous triple gauge couplings in proton-proton collisions at $\sqrt{s}=8\text{ TeV}$ are presented. The analysis is based on a data sample, corresponding to an integrated

luminosity of 119.6 fb^{-1} , collected with the CMS experiment at the LHC. The measurements are performed in the leptonic decay modes $ZZ \rightarrow \ell\ell\ell'\ell'$, where $\ell=e, \mu$ and $\ell'=e, \mu, \tau$. The measured total cross section $\sigma(\text{pp} \rightarrow ZZ) = 7.7 \pm 0.5 \text{ (stat)} - 0.4 + 0.5 \text{ (syst)} \pm 0.4 \text{ (theo)} \pm 0.2 \text{ (lumi)} \text{ pb}$, for both Z bosons produced in the mass range $60 < m_Z < 120 \text{ GeV}$, is consistent with standard model predictions. Differential cross sections are measured and well described by the theoretical predictions. The invariant mass distribution of the four-lepton system is used to set limits on anomalous ZZZ and $ZZ\gamma$ couplings at the 95% confidence level: $-0.004 < f_4 Z < 0.004$, $-0.004 < f_5 Z < 0.004$, $-0.005 < f_4 \gamma < 0.005$, and $-0.005 < f_5 \gamma < 0.005$.

Keywords: CMS; Physics; Electroweak.

21- Differential Cross Section Measurements for the Production of A W Boson in Association with Jets in Proton-Proton Collisions at $\sqrt{s}=7\text{TeV}$

Ali Yehia Ellithi Kamel, W. Adam, T. Bergauer, M. Dragicevic, J. Erö and C. Fabjan

Physics Letters B, 741: 12 (2015) IF: 6.131

Measurements are reported of differential cross sections for the production of a W boson, which decays into a muon and a neutrino, in association with jets, as a function of several variables, including the transverse momenta (p_T) and pseudorapidities of the four leading jets, the scalar sum of jet transverse momenta (HT), and the difference in azimuthal angle between the directions of each jet and the muon. The data sample of pp collisions at a centre-of-mass energy of 7 TeV was collected with the CMS detector at the LHC and corresponds to an integrated luminosity of 5.0 fb^{-1} . The measured cross sections are compared to predictions from Monte Carlo generators, MADGRAPH+PYTHIA and SHERPA, and to next-to-leading-order calculations from BLACKHAT+SHERPA. The differential cross sections are found to be in agreement with the predictions, apart from the p_T distributions of the leading jets at high p_T values, the distributions of the HT at high-HT and low jet multiplicity, and the distribution of the difference in azimuthal angle between the leading jet and the muon at low values.

22- Long-range two-particle Correlations of Strange Hadrons with Charged Particles in pPb and PbPb Collisions at LHC Energies

Ali Yehia Ellithi Kamel, Matthew Hans, Di Matteo, Richard Alexander and Ivan Amos

Physics Letters B, 742 (6): 200-224 (2015) IF: 6.131

Measurements of two-particle angular correlations between an identified strange hadron (K_S^0 or $\Lambda/\bar{\Lambda}$) and a charged particle, emitted in pPb collisions, are presented over a wide range in pseudorapidity and full azimuth. The data, corresponding to an integrated luminosity of approximately 35 nb^{-1} , were collected at a nucleon-nucleon center-of-mass energy ($\sqrt{s_{NN}}$) of 5.02 TeV with the CMS detector at the LHC. The results are compared to semi-peripheral PbPb collision data at $\sqrt{s_{NN}} = 2.76 \text{ TeV}$, covering similar charged-particle multiplicities in the events. The observed azimuthal correlations at large relative pseudorapidity are used to extract the second-

order (v_2) and third-order (v_3) anisotropy harmonics of K_S^0 and $\Lambda/\bar{\Lambda}$ particles. These quantities are studied as a function of the charged-particle multiplicity in the event and the transverse momentum of the particles. For high-multiplicity pPb events, a clear particle species dependence of v_2 and v_3 is observed. For $p_T < 2 \text{ GeV}$, the v_2 and v_3 values

of K_S^0 particles are larger than those of $\Lambda/\bar{\Lambda}$ particles at the same p_T . This splitting effect between two particle species is found to be stronger in pPb than in PbPb collisions in the same multiplicity range. When divided by the number of constituent quarks and compared at the same transverse kinetic energy per quark, both v_2 and v_3 for K_S^0 particles are observed to be consistent with those for $\Lambda/\bar{\Lambda}$ particles at the 10% level in pPb collisions. This consistency extends over a wide range of particle transverse kinetic energy and event multiplicities.

Keywords: CMS; Ridge; Long-range; Correlations; Flow; High-multiplicity.

23- Measurement of the production cross section ratio $\sigma(\chi_{b2}(1P))/\sigma(\chi_{b1}(1P))$ in pp collisions at $\sqrt{s}=7\text{TeV}$

Ali Yehia Ellithi Kamel, CMS Collaboration, Adair A., Akgun B., Ecklund, K.M. and Geurts F.J.M.

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A measurement of the production cross section ratio $\sigma(\chi_{b2}(1P))/\sigma(\chi_{b1}(1P))$ is presented. The $\chi_{b1}(1P)$ and $\chi_{b2}(1P)$ bottomonium states, promptly produced in pp collisions at $\sqrt{s} = 8 \text{ TeV}$, are detected by the CMS experiment at the CERN LHC through their radiative decays $\chi_{b1,2}(1P) \rightarrow \Upsilon(1S) + \gamma$. The emitted photons are measured through their conversion to e^+e^- pairs, whose reconstruction allows the two states to be resolved. The $\Upsilon(1S)$ is measured through its decay to two muons. An event sample corresponding to an integrated luminosity of 20.7 fb^{-1} is used to measure the cross section ratio in a phase-space region defined by the photon pseudorapidity, $|\eta_\gamma| < 1.0$; the $\Upsilon(1S)$ rapidity, $|y_Y| < 1.5$; and the $\Upsilon(1S)$ transverse momentum, $7 < p_{T,Y} < 40 \text{ GeV}$. The cross section ratio shows no significant dependence on the $\Upsilon(1S)$ transverse momentum, with a measured average value of $0.85 \pm 0.07 \text{ (stat+syst)} \pm 0.08 \text{ (BF)}$, where the first uncertainty is the combination of the experimental statistical and systematic uncertainties and the second is from the uncertainty in the ratio of the χ_b branching fractions.

24- Search for Stealth Supersymmetry in Events with Jets, Either Photons or Leptons, and Low Missing Transverse Momentum in PP Collisions at 8 TeV

Ali Yehia Ellithi Kamel, W. Adam, T. Bergauer, J. Erö and M. Dragicevic

Physics Letters B, 743: 503 (2015) IF: 6.131

The results of a search for new physics in final states with jets, either photons or leptons, and low missing transverse momentum are reported. The study is based on a sample of proton-proton

collisions collected at a center-of-mass energy $\sqrt{s}=8$ TeV with the CMS detector in 2012. The integrated luminosity of the sample is 19.7 fb^{-1} . Many models of new physics predict the production of events with jets, electroweak gauge bosons, and little or no missing transverse momentum. Examples include stealth models of supersymmetry (SUSY), which predict a hidden sector at the electroweak energy scale in which SUSY is approximately conserved. The data are used to search for stealth SUSY signatures in final states with either two photons or an oppositely charged electron and muon. No excess is observed with respect to the standard model expectation, and the results are used to set limits on squark pair production in the stealth SUSY framework.

25- Search for A Standard Model-Like Higgs Boson in The $\mu^+ \mu^-$ - and $e^+ e^-$ Decay Channels at the LHC

Ali Yehia Ellithi Kamel, W. Adam, T. Bergauer, J. Erö and M. Dragicevic

Physics Letters B, 744: 184 (2015) IF: 6.131

A search is presented for a standard model-like Higgs boson decaying to the $\mu^+ \mu^-$ or $e^+ e^-$ final states based on proton-proton collisions recorded by the CMS experiment at the CERN LHC. The data correspond to integrated luminosities of 5.0 fb^{-1} at a centre-of-mass energy of 7 TeV and 19.7 fb^{-1} at 8 TeV for the $\mu^+ \mu^-$ search, and of 19.7 fb^{-1} at 8 TeV for the $e^+ e^-$ search. Upper limits on the production cross section times branching fraction at the 95% confidence level are reported for Higgs boson masses in the range from 120 to 150 GeV. For a Higgs boson with a mass of 125 GeV decaying to $\mu^+ \mu^-$, the observed (expected) upper limit on the production rate is found to be $7.4 (6.5+2.8-1.9)$ times the standard model value. This corresponds to an upper limit on the branching fraction of 0.0016. Similarly, for $e^+ e^-$, an upper limit of 0.0019 is placed on the branching fraction, which is $\approx 3.7 \times 10^5$ times the standard model value. These results, together with recent evidence of the 125 GeV boson coupling to τ -leptons with a larger branching fraction consistent with the standard model, confirm that the leptonic couplings of the new boson are not flavour-universal.

26- Pseudorapidity Distribution of Charged Hadrons in Proton-Proton Collisions at $\sqrt{s}=13\text{TeV}$

Ali Yehia Ellithi Kamel, W. Adam, T. Bergauer, J. Erö and M. Dragicevic

Physics Letters B, 751: 143 (2015) IF: 6.131

The pseudorapidity distribution of charged hadrons in pp collisions at $\sqrt{s}=13\text{TeV}$ is measured using a data sample obtained with the CMS detector, operated at zero magnetic field, at the CERN LHC. The yield of primary charged long-lived hadrons produced in inelastic pp collisions is determined in the central region of the CMS pixel detector ($|\eta| < 2$) using both hit pairs and reconstructed tracks. For central pseudorapidities ($|\eta| < 0.5$), the charged-hadron multiplicity density is $dN_{\text{ch}}/d\eta|_{|\eta|<0.5} = 5.49 \pm 0.01 (\text{stat}) \pm 0.17 (\text{syst})$, a value obtained by combining the two methods. The result is compared to predictions from Monte Carlo event generators and to similar measurements made at lower collision energies.

27- Study of W Boson Production in pPb Collisions at $\sqrt{s_{NN}} = 5.02$ TeV

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Physics Letters B, 750: 565 (2015) IF: 6.131

The first study of W boson production in pPb collisions is presented, for bosons decaying to a muon or electron, and a neutrino. The measurements are based on a data sample corresponding to an integrated luminosity of 34.6 nb^{-1} at a nucleon-nucleon centre-of-mass energy of $\sqrt{s_{NN}}=5.02\text{TeV}$, collected by the CMS experiment. The W boson differential cross sections, lepton charge asymmetry, and forward-backward asymmetries are measured for leptons of transverse momentum exceeding 25 GeV/c, and as a function of the lepton pseudorapidity in the $|\eta_{\text{lab}}| < 2.4$ range. Deviations from the expectations based on currently available parton distribution functions are observed, showing the need for including W boson data in nuclear parton distribution global fits.

28- Search for Diphoton Resonances in the Mass Range from 150 to 850 GeV in pp collisions at $\sqrt{s}=8$ TeV

Ali Yehia Ellithi Kamel, W. Adam, T. Bergauer, J. Erö and M. Dragicevic

Physics Letters B, 750: 494 (2015) IF: 6.131

Results are presented of a search for heavy particles decaying into two photons. The analysis is based on a 19.7 fb^{-1} sample of proton-proton collisions at $\sqrt{s}=8$ TeV collected with the CMS detector at the CERN LHC. The diphoton mass spectrum from 150 to 850 GeV is used to search for an excess of events over the background. The search is extended to new resonances with natural widths of up to 10% of the mass value. No evidence for new particle production is observed and limits at 95% confidence level on the production cross section times branching fraction to diphotons are determined. These limits are interpreted in terms of two-Higgs-doublet model parameters.

29- Angular Coefficients of Z Bosons Produced in PP Collisions at $\sqrt{s}=8\text{TeV}$ and Decaying to $\mu^+ \mu^-$ as A Function of Transverse Momentum and Rapidity

Ali Yehia Ellithi Kamel, W. Adam, T. Bergauer, J. Erö and M. Dragicevic

Physics Letters B, 750: 154 (2015) IF: 6.131

Measurements of the five most significant angular coefficients, A_0 through A_4 , for Z bosons produced in pp collisions at $\sqrt{s}=8$ TeV and decaying to $\mu^+ \mu^-$ are presented as a function of the transverse momentum and rapidity of the Z boson. The integrated luminosity of the dataset collected with the CMS detector at the LHC corresponds to 19.7 fb^{-1} . These measurements provide comprehensive information about the Z boson production mechanisms, and are compared to the QCD

predictions at leading order, next-to-leading order, and next-to-next-to-leading order in perturbation theory.

30- Search for Lepton-Flavour-Violating Decays of the Higgs Boson

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Physics Letters B, 749: 337 (2015) IF: 6.131

The first direct search for lepton-flavour-violating decays of the recently discovered Higgs boson (H) is described. The search is performed in the $H \rightarrow \mu\tau_e$ and $H \rightarrow \mu\tau_h$ channels, where τ_e and τ_h are tau leptons reconstructed in the electronic and hadronic decay channels, respectively. The data sample used in this search was collected in pp collisions at a centre-of-mass energy of $\sqrt{s} = 8$ TeV with the CMS experiment at the CERN LHC and corresponds to an integrated luminosity of 19.7 fb^{-1} . The sensitivity of the search is an order of magnitude better than the existing indirect limits. A slight excess of signal events with a significance of 2.4 standard deviations is observed. The p-value of this excess at $M_H = 125 \text{ GeV}$ is 0.010. The best fit branching fraction is $B(H \rightarrow \mu\tau) = (0.84 + 0.39 - 0.37)\%$. A constraint on the branching fraction, $B(H \rightarrow \mu\tau) < 1.51\%$ at 95% confidence level is set. This limit is subsequently used to constrain the μ - τ Yukawa couplings to be less than 3.6×10^{-3} .

31- Measurement of the Z Boson Differential Cross Section in Transverse Momentum and Rapidity in Proton–proton Collisions at 8TeV

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Physics Letters B, 749: 187 (2015) IF: 6.131

We present a measurement of the Z boson differential cross section in rapidity and transverse momentum using a data sample of pp collision events at a centre-of-mass energy $\sqrt{s} = 8$ TeV, corresponding to an integrated luminosity of 19.7 fb^{-1} . The Z boson is identified via its decay to a pair of muons. The measurement provides a precision test of quantum chromodynamics over a large region of phase space. In addition, due to the small experimental uncertainties in the measurement the data has the potential to constrain the gluon parton distribution function in the kinematic regime important for Higgs boson production via gluon fusion. The results agree with the next-to-next-to-leading-order predictions computed with the fewz program. The results are also compared to the commonly used leading-order MadGraph and next-to-leading-order powheg generators.

Keywords: PP collision; Z Boson.

32- Measurements of the $\Upsilon(1S)$, $\Upsilon(2S)$, and $\Upsilon(3S)$ differential cross sections in pp collisions $\sqrt{s} = 8\text{TeV}$

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Physics Letters B, 749: 14 (2015) IF: 6.131

Differential cross sections as a function of transverse momentum p_T are presented for the production of $\Upsilon(nS)$ ($n=1, 2, 3$) states decaying into a pair of muons. Data corresponding to an integrated luminosity of 4.9 fb^{-1} in pp collisions at $\sqrt{s} = 7$ TeV were collected with the CMS detector at the LHC. The analysis selects events with dimuon rapidity $|y| < 1.2$ and dimuon transverse momentum in the range $10 < p_T < 100 \text{ GeV}$. The measurements show a transition from an exponential to a power-law behavior at $p_T \approx 20 \text{ GeV}$ for the three Υ states. Above that transition, the $\Upsilon(3S)$ spectrum is significantly harder than that of the $\Upsilon(1S)$. The ratios of the $\Upsilon(3S)$ and $\Upsilon(2S)$ differential cross sections to the $\Upsilon(1S)$ cross section show a rise as p_T increases at low p_T , then become flatter at higher p_T .

Keywords: Hadron-Hadron scattering; Muon pairs.

33- Search for Resonant Pair Production of Higgs Bosons Decaying to Two Bottom Quark–antiquark Pairs in Proton–proton Collisions at 8TeV

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Physics Letters B, 749: 560-582 (2015) IF: 6.131

A model-independent search for a narrow resonance produced in proton–proton collisions at $\sqrt{s} = 8 \text{ TeV}$ and decaying to a pair of 125 GeV Higgs bosons that in turn each decays into a bottom quark–antiquark pair is performed by the CMS experiment at the LHC. The analyzed data correspond to an integrated luminosity of 17.9 fb^{-1} . No evidence for a signal is observed. Upper limits at a 95% confidence level on the production cross section for such a resonance, in the mass range from 270 to 1100 GeV, are reported. Using these results, a radion with decay constant of 1 TeV and mass from 300 to 1100 GeV, and a Kaluza–Klein graviton with mass from 380 to 830 GeV are excluded at a 95% confidence level.

Keywords: CMS; Upsilon; B-Physics; Cross section

34- Search for Narrow High-Mass Resonances in Proton–Proton Collisions at $\sqrt{s} = 8 \text{ TeV}$ Decaying to a Z and a Higgs Boson

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Physics Letters B, 748: 255 (2015) IF: 6.131

A search for a narrow, high-mass resonance decaying into Z and Higgs (H) bosons is presented. The final state studied consists of a merged jet pair and a t pair resulting from the decays of Z and H bosons, respectively.

The analysis is based on a data sample of proton–proton collisions at a center-of-mass energy of $\sqrt{s} = 8 \text{ TeV}$, collected with the CMS experiment in 2012, and corresponding to an integrated luminosity of 19.7 fb^{-1} . In the resonance mass range of interest, which extends from 0.8 to 2.5 TeV, the Z and H bosons are produced with large momenta, which implies that the final products of the two quarks or the two t leptons must be detected within a small angular interval.

From a combination of all possible decay modes of the t leptons, production cross sections in a range between 0.9 and 27.8 fb are excluded at 95% confidence level, depending on the resonance mass.

35- Search for A Pseudoscalar Boson Decaying Into a Z Boson and the 125 GeV Higgs Boson in $\ell^+\ell^-\text{bb}$ final States

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Physics Letters B, 748: 221-243 (2015) IF: 6.131

Results are reported on a search for decays of a pseudoscalar A boson into a Z boson and a light scalar h boson, where the Z boson decays into a pair of oppositely-charged electrons or muons, and the h boson decays into bb . The search is based on data from proton-proton collisions at a center-of-mass energy $\sqrt{s}=8\text{ TeV}$ collected with the CMS detector, corresponding to an integrated luminosity of 19.7 fb^{-1} . The h boson is assumed to be the standard model-like Higgs boson with a mass of 125 GeV. With no evidence for signal, upper limits are obtained on the product of the production cross section and the branching fraction of the A boson in the Zh channel. Results are also interpreted in the context of two Higgs doublet models.

Keywords: CMS; Higgs; 2HDM; MSSM; BSM.

36- Search for Heavy Majorana Neutrinos in $\mu^{\pm}\mu^{\pm} + \text{Jets}$ Events in Proton-proton Collisions at $\sqrt{s}=8\text{ TeV}$

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Physics Letters B, 748: 144 (2015) IF: 6.131

A search is performed for heavy Majorana neutrinos (N) using an event signature defined by two muons of the same charge and two jets ($\mu^{\pm}\mu^{\pm}\text{j}$). The data correspond to an integrated luminosity of 19.7 fb^{-1} of proton-proton collisions at a center-of-mass energy of 8 TeV, collected with the CMS detector at the CERN LHC. No excess of events is observed beyond the expected standard model background and upper limits are set on $|\text{V}\mu\text{N}|^2$ as a function of Majorana neutrino mass $m\text{N}$ for masses in the range of 40–500 GeV, where $\text{V}\mu\text{N}$ is the mixing element of the heavy neutrino with the standard model muon neutrino. The limits obtained are $|\text{V}\mu\text{N}|^2 < 0.00470$ for $m\text{N} = 90\text{ GeV}$, $|\text{V}\mu\text{N}|^2 < 0.0123$ for $m\text{N} = 200\text{ GeV}$, and $|\text{V}\mu\text{N}|^2 < 0.583$ for $m\text{N} = 500\text{ GeV}$. These results extend considerably the regions excluded by previous direct searches.

37- Search for Pair-Produced Resonances Decaying to Jet Pairs in Proton-proton Collisions at $\sqrt{s}=8\text{ TeV}$

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Physics Letters B, 747: 98 (2015) IF: 6.131

Results are reported of a general search for pair production of heavy resonances decaying to pairs of hadronic jets in events with at least four jets. The study is based on up to 19.4 fb^{-1} of integrated luminosity from proton-proton collisions at a center-of-mass energy of 8 TeV, recorded with the CMS detector at the

LHC. Limits are determined on the production of scalar top quarks (top squarks) in the framework of R-parity violating supersymmetry and on the production of color-octet vector bosons (colorons). First limits at the LHC are placed on top squark production for two scenarios. The first assumes decay to a bottom quark and a light-flavor quark and is excluded for masses between 200 and 385 GeV, and the second assumes decay to a pair of light-flavor quarks and is excluded for masses between 200 and 350 GeV at 95% confidence level. Previous limits on colorons decaying to light-flavor quarks are extended to exclude masses from 200 to 835 GeV.

38- Measurement of the W Boson Helicity in Events with A Single Reconstructed Top Quark in PP Collisions at $\sqrt{s}=8\text{ TeV}$

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Journal of High Energy Physics, 1: 53 (2015) IF: 6.111

A measurement of the W boson helicity is presented, where the W boson originates from the decay of a top quark produced in pp collisions. The event selection, optimized for reconstructing a single top quark in the final state, requires exactly one isolated lepton (muon or electron) and exactly two jets, one of which is likely to originate from the hadronization of a bottom quark. The analysis is performed using data recorded at a center-of-mass energy of 8 TeV with the CMS detector at the CERN LHC in 2012. The data sample corresponds to an integrated luminosity of 19.7 fb^{-1} . The measured helicity fractions are $F_L = 0.298 \pm 0.028\text{ (stat)} \pm 0.032\text{ (syst)}$, $F_0 = 0.720 \pm 0.039\text{ (stat)} \pm 0.037\text{ (syst)}$, and $F_R = 0.018 \pm 0.019\text{ (stat)} \pm 0.011\text{ (syst)}$. These results are used to set limits on the real part of the $t\text{Wb}$ anomalous couplings, g_L and g_R .

Keywords: Electroweak interaction; Hadron-Hadron scattering

39- Measurement of the Ratio of the Production Cross Sections Times Branching Fractions of $B_c^{\pm} \rightarrow J/\psi \pi^{\pm}$ and $B^{\pm} \rightarrow J/\psi K^{\pm}$ and $B(B_c^{\pm} \rightarrow J/\psi \pi^{\pm})$ in pp collisions at $\sqrt{s}=7\text{ TeV}$

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Journal of High Energy Physics, 2015: 63 (2015) IF: 6.111

The ratio of the production cross sections times branching fractions $(\sigma(B_c^{\pm})B(B_c^{\pm} \rightarrow J/\psi \pi^{\pm})) / (\sigma(B^{\pm})B(B^{\pm} \rightarrow J/\psi K^{\pm}))$ is studied in proton-proton collisions at a center-of-mass energy of 7 TeV with the CMS detector at the LHC. The kinematic region investigated requires B_c^{\pm} and B^{\pm} mesons with transverse momentum $p_T > 15\text{ GeV}$ and rapidity $|y| < 1.6$. The data sample corresponds to an integrated luminosity of 5.1 fb^{-1} . The ratio is determined to be $[0.48 \pm 0.05\text{ (stat)} \pm 0.03\text{ (syst)} \pm 0.05\text{ (}\tau[B_c^{\pm}])\%]$. The $B_c^{\pm} \rightarrow J/\psi \pi^{\pm}$ decay is also observed in the same data sample. Using a model-independent method developed to measure the efficiency given the presence of resonant behaviour in the three-pion system, the

ratio of the branching fractions $B(B^{\pm} \rightarrow J \over \psi \pi^{\pm} \pi^{\pm}) / B(B^{\pm} \rightarrow J \over \psi \pi^{\pm} \pi^{\mp})$ is measured to be $2.55 \pm 0.80(\text{stat}) \pm 0.33(\text{syst}) \pm 0.04(\tau_B)$, consistent with the previous LHCb result.

Keywords: Hadron-hadron scattering; Branching fraction; B Physics.

40- Search for A Higgs Boson in the Mass Range from 145 to 1000 GeV Decaying to A Pair of W or Z Bosons

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Journal of High Energy Physics, (10): 144 (2015) IF: 6.111

A search for a heavy Higgs boson in the H to WW and H to ZZ decay channels is reported. The search is based upon proton-proton collision data samples corresponding to an integrated luminosity of up to 5.1 fb^{-1} at $\sqrt{s} = 7 \text{ TeV}$ and up to 19.7 fb^{-1} at $\sqrt{s} = 8 \text{ TeV}$, recorded by the CMS experiment at the CERN LHC. Several final states of the H to WW and H to ZZ decays are analyzed. The combined upper limit at the 95% confidence level on the product of the cross section and branching fraction exclude a Higgs boson with standard model-like couplings and decays in the range $145 < m_H < 1000 \text{ GeV}$. We also interpret the results in the context of an electroweak singlet extension of the standard model.

41- Search for Physics Beyond the Standard Model in Events with Two Leptons, Jets, and Missing Transverse Momentum in Pp Collisions at $\sqrt{S} = 8 \text{ TeV}$

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Journal of High Energy Physics, 2015(4): 124, IF: 6.111

A search is presented for physics beyond the standard model in final states with two opposite-sign same-flavor leptons, jets, and missing transverse momentum. The data sample corresponds to an integrated luminosity of 19.4 fb^{-1} of proton-proton collisions at $\sqrt{s} = 8 \text{ TeV}$ collected with the CMS detector at the CERN LHC in 2012. The analysis focuses on searches for a kinematic edge in the invariant mass distribution of the opposite sign same-flavor lepton pair and for final states with an on-shell Z boson. The observations are consistent with expectations from standard model processes and are interpreted in terms of upper limits on the production of supersymmetric particles.

42- Search for Third-Generation Scalar Leptoquarks in the $T\tau$ Channel in Proton-proton Collisions at $\sqrt{S} = 8 \text{ TeV}$

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Journal of High Energy Physics, (7): 42 (2015) IF: 6.111

A search for pair production of third-generation scalar leptoquarks decaying to top quark and lepton pairs is presented using proton-proton collision data at a center-of-mass energy of $\sqrt{s} = 8 \text{ TeV}$ collected with the CMS detector at the LHC and corresponding to an integrated luminosity of 19.7 fb^{-1} . The search is performed using events that contain an electron or a muon, a hadronically decaying lepton, and two or more jets. The observations are found to be consistent with the standard model predictions. Assuming that all leptoquarks decay to a top quark and a lepton, the existence of pair produced, charge $-1/3$, third-generation leptoquarks up to a mass of 685 GeV is excluded at 95% confidence level. This result constitutes the first direct limit for leptoquarks decaying into a top quark and a lepton, and may also be applied directly to the pair production of bottom squarks decaying predominantly via the R-parity violating coupling.

43- Measurement of the Underlying Event Activity using Charged-Particle Jets in Proton-proton Collisions at $\sqrt{S} = 2.76 \text{ TeV}$

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Journal of High Energy Physics, (9): 137, 2015 IF: 6.111

A measurement of the underlying event (UE) activity in proton-proton collisions is performed using events with charged-particle jets produced in the central pseudorapidity region ($|\eta_{\text{jet}}| < 2$) and with transverse momentum $1 < p_{T,\text{jet}} < 100 \text{ GeV}$. The analysis uses a data sample collected at a centre-of-mass energy of 2.76 TeV with the CMS experiment at the LHC. The UE activity is measured as a function of $p_{T,\text{jet}}$ in terms of the average multiplicity and scalar sum of transverse momenta (p_T) of charged particles, with $|\eta| < 2$ and $p_T > 0.5 \text{ GeV}$, in the azimuthal region transverse to the highest p_T jet direction. By further dividing the transverse region into two regions of smaller and larger activity, various components of the UE activity are separated. The measurements are compared to previous results at 0.9 and 7 TeV , and to predictions of several Monte Carlo event generators, providing constraints on the modelling of the UE dynamics.

44- Search for Neutral Color-octet Weak-triplet Scalar Particles in Proton-Proton Collisions at $\sqrt{S} = 8 \text{ TeV}$

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Journal of High Energy Physics, (9): 201 (2015) IF: 6.111

A search for pair production of neutral color-octet weak-triplet scalar particles (Θ^0) is performed in processes where one Θ^0 decays to a pair of b quark jets and the other to a Z boson plus a jet, with the Z boson decaying to a pair of electrons or muons. The search is performed with data collected by the CMS experiment at the CERN LHC corresponding to an integrated luminosity of 19.7 fb^{-1} of proton-proton collisions at $\sqrt{s} = 8 \text{ TeV}$. The number of observed events is found to be in agreement with the standard model predictions. The 95% confidence level upper limit on the product of the cross section and branching fraction is

obtained as a function of the Θ^0 mass. The 95% confidence level lower bounds on the Θ^0 mass are found to be 623 and 426 GeV, for two different octo-triplet theoretical scenarios. These are the first direct experimental bounds on particles predicted by the octo-triplet model.

Keywords: Exotics; Hadronhadron scattering.

45- Measurement of the $Z \gamma$ Production Cross Section in Pp Collisions at 8TeV and Search for Anomalous Triple Gauge Boson Couplings

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Journal of High Energy Physics, (4): 164 (2015) IF: 6.111

The cross section for the production of $Z\gamma$ in proton-proton collisions at 8 TeV is measured based on data collected by the CMS experiment at the LHC corresponding to an integrated luminosity of 19.5 fb^{-1} . Events with an oppositely-charged pair of muons or electrons together with an isolated photon are selected. The differential cross section as a function of the photon transverse momentum is measured inclusively and exclusively, where the exclusive selection applies a veto on central jets. The observed cross sections are compatible with the expectations of next-to-next-to-leading-order quantum chromodynamics. Limits on anomalous triple gauge couplings of $ZZ\gamma$ and $Z\gamma\gamma$ are set that improve on previous experimental results obtained with the charged lepton decay modes of the Z boson.

46- Search for Disappearing Tracks in Proton-Proton Collisions At $\sqrt{s} = 8 \text{ TeV}$

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Journal of High Energy Physics, 96 (2015) IF: 6.111

A search is presented for long-lived charged particles that decay within the CMS detector and produce the signature of a disappearing track. Disappearing tracks are identified as those with little or no associated calorimeter energy deposits and with missing hits in the outer layers of the tracker. The search uses proton-proton collision data recorded at $\sqrt{s} = 8 \text{ TeV}$ that corresponds to an integrated luminosity of 19.5 fb^{-1} . The results of the search are interpreted in the context of the anomaly-mediated supersymmetry breaking (AMSB) model. The number of observed events is in agreement with the background expectation, and limits are set on the cross section of direct electroweak chargino production in terms of the chargino mass and mean proper lifetime. At 95% confidence level, AMSB models with a chargino mass less than 260 GeV, corresponding to a mean proper lifetime of 0.2 ns, are excluded.

Keywords: Hadron-hadron scattering; Supersymmetry; Exotics.

47- Study of Z Production in Ppbp and PP Collisions at $\sqrt{s} = 2.76 \text{ TeV}$ in The Dimuon and Dielectron Decay Channels

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Journal of High Energy Physics, 22: (2015) IF: 6.111

The production of Z bosons is studied in the dimuon and dielectron decay channels in PbPb and pp collisions at $\sqrt{s_{NN}} = 2.76 \text{ TeV}$, using data collected by the CMS experiment at the LHC. The PbPb data sample corresponds to an integrated luminosity of about $166 \mu\text{b}^{-1}$, while the pp data sample collected in 2013 at the same nucleon-nucleon centre-of-mass energy has an integrated luminosity of 5.4 pb^{-1} . The Z boson yield is measured as a function of rapidity, transverse momentum, and collision centrality. The ratio of PbPb to pp yields, scaled by the number of inelastic nucleon-nucleon collisions, is found to be $1.06 \pm 0.05 \text{ (stat)} \pm 0.08 \text{ (syst)}$ in the dimuon channel and $1.02 \pm 0.08 \text{ (stat)} \pm 0.15 \text{ (syst)}$ in the dielectron channel, for centrality-integrated Z boson production. This binary collision scaling is seen to hold in the entire kinematic region studied, as expected for a colourless probe that is unaffected by the hot and dense QCD medium produced in heavy ion collisions.

48- Search for Vector-like T Quarks Decaying to Top Quarks and Higgs Bosons in the All-hadronic Channel using Jet Substructure

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Journal of High Energy Physics, (6): 80 (2015) IF: 6.111

A search is performed for a vector-like heavy T quark that is produced in pairs and that decays to a top quark and a Higgs boson. The data analysed correspond to an integrated luminosity of 19.7 fb^{-1} collected with the CMS detector in proton-proton collisions at $\sqrt{s} = 8 \text{ TeV}$. For T quarks with large mass values the top quarks and Higgs bosons can have significant Lorentz boosts, so that their individual decay products often overlap and merge. Methods are applied to resolve the substructure of such merged jets. Upper limits on the production cross section of a T quark with mass between 500 and 1000 GeV/c² are derived. If the T quark decays exclusively to tH, the observed (expected) lower limit on the mass of the T quark is 745 (773) GeV/c² at 95% confidence level. For the first time an algorithm is used for tagging boosted Higgs bosons that is based on a combination of jet substructure information and b tagging.

49- Searches for Third-Generation Squark Production in Fully Hadronic Final States in Proton-Proton Collisions at $\sqrt{s} = 8 \text{ TeV}$

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Journal of High Energy Physics, (6): 116 (2015) IF: 6.111

Searches for third-generation squarks in fully hadronic final states are presented using data samples corresponding to integrated luminosities of 19.4 or 19.7 fb^{-1} , collected at a centre-of-mass energy of 8 TeV with the CMS detector at the LHC. Three mutually exclusive searches are presented, each optimized for a different decay topology. They include a multijet search requiring one fully reconstructed top quark, a dijet search requiring one or two jets originating from b quarks, and a monojet search. No excesses above the standard model expectations are seen, and limits are set on top and bottom squark production in the context of simplified models of supersymmetry.

Keywords: Supersymmetry; Hadron-hadron scattering.

50- Search for the Production of Dark Matter in Association With Top-Quark Pairs in the Single-Lepton Final State in Proton-Proton Collisions at $\sqrt{s} = 8$ TeV

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Journal of High Energy Physics, (6): 121 (2015) IF: 6.111

A search is presented for particle dark matter produced in association with a pair of top quarks in pp collisions at a centre-of-mass energy of $\sqrt{s} = 8$ TeV. The data were collected with the CMS detector at the LHC and correspond to an integrated luminosity of 19.7 fb^{-1} . This search requires the presence of one lepton, multiple jets, and large missing transverse energy. No excess of events is found above the SM expectation, and upper limits are derived on the production cross section. Interpreting the findings in the context of a scalar contact interaction between fermionic dark matter particles and top quarks, lower limits on the interaction scale are set. These limits are also interpreted in terms of the dark matter-nucleon scattering cross sections for the spin-independent scalar operator and they complement direct searches for dark matter particles in the low mass region.

Keywords: Hadron-hadron scattering; Beyond standard model.

51- Searches for Supersymmetry Using the MT2 Variable in Hadronic Events Produced in PP Collisions at 8 TeV

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Journal of High Energy Physics, (5): 78 (2015) IF: 6.111

Searches for supersymmetry (SUSY) are performed using a sample of hadronic events produced in 8 TeV pp collisions at the CERN LHC. The searches are based on the MT2 variable, which is a measure of the transverse momentum imbalance in an event. The data were collected with the CMS detector and correspond to an integrated luminosity of 19.5 fb^{-1} . Two related searches are performed. The first is an inclusive search based on signal regions defined by the value of the MT2 variable, the hadronic energy in the event, the jet multiplicity, and the number of jets identified as originating from bottom quarks. The second is a search for a mass peak corresponding to a Higgs boson decaying to a bottom quark-antiquark pair, where the Higgs boson is produced as a decay product of a SUSY particle. For both searches, the principal backgrounds are evaluated with data control samples. No significant excess over the expected number of background events is observed, and exclusion limits on various SUSY models are derived.

Keywords: Supersymmetry; Hadron-hadron scattering.

52- Comparison of The $Z/\gamma^* + \text{jets}$ to $\gamma + \text{Jets}$ Cross Sections in Pp Collisions at $\sqrt{s} = 8$ TeV

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

Journal of High Energy Physics, (10): 128 (2015) IF: 6.023

A comparison of the differential cross sections for the processes $Z/\gamma^* + \text{jets}$ and photon (γ) + jets is presented. The measurements are based on data collected with the CMS detector at $\sqrt{s} = 8$ TeV corresponding to an integrated luminosity of 19.7 fb^{-1} . The differential cross sections and their ratios are presented as functions of pT. The measurements are also shown as functions of the jet multiplicity. Differential cross sections are obtained as functions of the ratio of the Z/γ^* pT to the sum of all jet transverse momenta and of the ratio of the Z/γ^* pT to the leading jet transverse momentum. The data are corrected for detector effects and are compared to simulations based on several QCD calculations.

53- Measurements of Differential and Double-Differential Drell-Yan Cross Sections in Proton-Proton Collisions at $\sqrt{s} = 8$ TeV

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

The European Physical Journal C, 75: 147 (2015) IF: 5.084

Measurements of the differential and double differential Drell-Yan cross sections in the dielectron and dimuon channels are presented. They are based on proton-proton collision data at $\sqrt{s} = 8$ TeV recorded with the CMS detector at the LHC and corresponding to an integrated luminosity of 19.7 fb^{-1} . The measured inclusive cross section in the Z peak region (60–120 GeV), obtained from the combination of the dielectron and dimuon channels, is $1138 \pm 8 \text{ (exp)} \pm 25 \text{ (theo)} \pm 30 \text{ (lumi)} \text{ pb}$, where the statistical uncertainty is negligible. The differential cross section $d\sigma/dm$ in the dilepton mass range 15–2000 GeV is measured and corrected to the full phase space. The double-differential cross section $d^2\sigma/dm d|\eta|$ is also measured over the mass range 20 to 1500 GeV and absolute dilepton rapidity from 0 to 2.4. In addition, the ratios of the normalized differential cross sections measured at $\sqrt{s} = 7$ and 8 TeV are presented. These measurements are compared to the predictions of perturbative QCD at next-to-leading and next-to-next-to-leading (NNLO) orders using various sets of parton distribution functions (PDFs). The results agree with the NNLO theoretical predictions computed with *fewz* 3.1 using the CT10 NNLO and NNPDF2.1 NNLO PDFs. The measured double-differential cross section and ratio of normalized differential cross sections are sufficiently precise to constrain the proton PDFs.

54- Measurement of The Inclusive 3-Jet Production Differential Cross Section in Proton-Proton Collisions at 7 TeV and Determination of the Strong Coupling Constant in the TeV Range

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

The European Physical Journal C, 75: 186 (2015) IF: 5.084

This paper presents a measurement of the inclusive 3-jet production differential cross section at a proton-proton centre-of-mass energy of 7 TeV using data corresponding to an integrated luminosity of 5 fb^{-1} collected with the CMS detector. The analysis is based on the three jets with the highest transverse momenta. The cross section is measured as a function of the invariant mass of the three jets in a range of 445–3270 GeV and

in two bins of the maximum rapidity of the jets up to a value of 2. A comparison between the measurement and the prediction from perturbative QCD at next-to-leading order is performed. Within uncertainties, data and theory are in agreement. The sensitivity of the observable to the strong coupling constant α_s is studied. A fit to all data points with 3-jet masses larger than 664 GeV gives a value of the strong coupling constant of $\alpha_s(M_Z) = 0.1171 \pm 0.0013(\text{Exp})^{+0.0073-0.0047}(\text{theo})$.

Keywords: CMS; Physics; QCD; Jets; 3-jet mass; PDF; Strong coupling constant; Alpha-S.

55- Nuclear effects on the transverse momentum spectra of charged particles in pPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV

Ali Yehia Ellithi Kamel,

The European Physical Journal C, 75: 288 (2015) IF: 5.084

Transverse momentum spectra of charged particles are measured by the CMS experiment at the CERN LHC in pPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV, in the range $0.4 < p_T < 120$ GeV/c and pseudorapidity $|\eta_{CM}| < 1.8$ in the proton–nucleon center-of-mass frame. For $p_T < 10$ GeV/c, the charged-particle production is asymmetric about $\eta_{CM} = 0$, with smaller yield observed in the direction of the proton beam, qualitatively consistent with expectations from shadowing in nuclear parton distribution functions (nPDF). A pp reference spectrum at $\sqrt{s} = 5.02$ TeV is obtained by interpolation from previous measurements at higher and lower center-of-mass energies. The p_T distribution measured in pPb collisions shows an enhancement of charged particles with $p_T > 20$ GeV/c compared to expectations from the pp reference. The enhancement is larger than predicted by perturbative quantum chromodynamics calculations that include antishadowing modifications of nPDFs.

56- Constraints on Parton Distribution Functions and Extraction of the Strong Coupling Constant from the Inclusive Jet Cross Section in PP Collisions at [Formula: see text][Formula: see text]

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

The European Physical Journal C, 75: 288 (2015) IF: 5.084

The inclusive jet cross section for proton-proton collisions at a centre-of-mass energy of 7[Formula: see text] was measured by the CMS Collaboration at the LHC with data corresponding to an integrated luminosity of 5.0[Formula: see text].

The measurement covers a phase space up to 2[Formula: see text] in jet transverse momentum and 2.5 in absolute jet rapidity. The statistical precision of these data leads to stringent constraints on the parton distribution functions of the proton.

The data provide important input for the gluon density at high fractions of the proton momentum and for the strong coupling constant at large energy scales. Using predictions from perturbative quantum chromodynamics at next-to-leading order, complemented with electroweak corrections, the constraining power of these data is investigated and the strong coupling constant at the Z boson mass [Formula: see text] is determined to be [Formula: see text], which is in agreement with the world average.

57- Measurement of Electroweak Production of Two Jets in Association With A Z Boson in Proton–Proton Collisions at $\sqrt{s} = 8$ TeV

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

The European Physical Journal C, 75: 66 (2015) IF: 5.084

The purely electroweak (EW) cross section for the production of two jets in association with a Z boson, in proton–proton collisions at $\sqrt{s} = 8$ TeV, is measured using data recorded by the CMS experiment at the CERN LHC, corresponding to an integrated luminosity of 19.7 fb[^{superscript -1}]. The electroweak cross section for the $\ell\ell$ [_{jj}] final state (with $\ell = e$ or μ and j representing the quarks produced in the hard interaction) in the kinematic region defined by $M[\ell\ell] > 50$ GeV, $M[jj] > 120$ GeV, transverse momentum $p_T[j] > 25$ GeV, and pseudorapidity $|\eta[j]| < 5$, is found to be $\sigma[\text{subscript EW}](\ell\ell[\text{subscript jj}]) = 174 \pm 15$ (stat) ± 40 (syst) fb, in agreement with the standard model prediction. The associated jet activity of the selected events is studied, in particular in a signal-enriched region of phase space, and the measurements are found to be in agreement with QCD predictions.

58- Precise determination of the mass of the Higgs boson and tests of compatibility of its couplings with the standard model predictions using proton collisions at 7 and 8 TeV

Ali Yehia Ellithi Kamel

The European Physical Journal C, 75: 66 (2015) IF: 5.084

Properties of the Higgs boson with mass near 125 GeV are measured in proton-proton collisions with the CMS experiment at the LHC. Comprehensive sets of production and decay measurements are combined. The decay channels include $\gamma\gamma$, ZZ, WW, $\tau\tau$, bb, and $\mu\mu$ pairs. The data samples were collected in 2011 and 2012 and correspond to integrated luminosities of up to 5.1 fb⁻¹ at 7 TeV and up to 19.7 fb⁻¹ at 8 TeV. From the high-resolution $\gamma\gamma$ and ZZ channels, the mass of the Higgs boson is determined to be $125.02^{+0.26-0.27}(\text{stat})^{+0.14-0.15}(\text{syst})$ GeV. For this mass value, the event yields obtained in the different analyses tagging specific decay channels and production mechanisms are consistent with those expected for the standard model Higgs boson.

The combined best-fit signal relative to the standard model expectation is $1.00^{+0.09}(\text{stat})^{+0.08-0.07}(\text{theo})^{+0.07}(\text{syst})$ at the measured mass. The couplings of the Higgs boson are probed for deviations in magnitude from the standard model predictions in multiple ways, including searches for invisible and undetected decays. No significant deviations are found.

59- Distributions of Topological Observables in Inclusive Three- and Four-Jet Events in PP Collisions at $\sqrt{s} = 7$ TeV

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

The European Physical Journal C, 75: 302 (2015) IF: 5.084

This paper presents distributions of topological observables in inclusive three- and four-jet events produced in pp collisions at a centre-of-mass energy of 7 TeV with a data sample collected by the CMS experiment corresponding to a luminosity of 5.1 fb⁻¹. The distributions are corrected for detector effects, and compared with several event generators based on two- and multi-parton matrix elements at leading order. Among the considered calculations, MadGraph interfaced with pythia6 displays the overall best agreement with data.

Keywords: Pp Collision; Jet production; Parton distribution.

60- Constraints on the pMSSM, AMSB Model and on Other Models from the Search for Long-Lived Charged Particles in Proton–Proton Collisions at [Formula: see text]

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

The European Physical Journal C, 75: 325 (2015) IF: 5.084

Stringent limits are set on the long-lived leptonlike sector of the phenomenological minimal supersymmetric standard model (pMSSM) and the anomaly-mediated supersymmetry breaking (AMSB) model. The limits are derived from the results presented in a recent search for long-lived charged particles in proton–proton collisions, based on data collected by the CMS detector at a centre-of-mass energy of 8 TeV at the Large Hadron Collider. In the pMSSM parameter sub-space considered, 95.9 % of the points predicting charginos with a lifetime of at least 10 ns are excluded. These constraints on the pMSSM are the first obtained at the LHC. Charginos with a lifetime greater than 100 ns and masses up to about 800 GeV in the AMSB model are also excluded. The method described can also be used to set constraints on other models.

61- Measurements of the ZZ Production Cross Sections in the 2l2ν Channel in Proton–proton Collisions at $\sqrt{s} = 7$ and 8 TeV and Combined Constraints on Triple Gauge Couplings

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

The European Physical Journal C, 75: 512 (2015) IF: 5.084

Measurements of the ZZ production cross sections in proton–proton collisions at center-of-mass energies of 7 and 8 TeV are presented. Candidate events for the leptonic decay mode $ZZ \rightarrow 2l2\nu$, where l denotes an electron or a muon, are reconstructed and selected from data corresponding to an integrated luminosity of 5.1 (19.6) fb⁻¹ at 7 (8) TeV collected with the CMS experiment. The measured cross sections, $\sigma(\text{pp} \rightarrow ZZ) = 5.1^{+1.5}_{-1.4}(\text{stat})^{+1.4}_{-1.1}(\text{syst}) \pm 0.1(\text{lumi})$ ~pb at 7 TeV, and $7.2^{+0.8}_{-0.8}(\text{stat})^{+1.9}_{-1.5}(\text{syst}) \pm 0.2(\text{lumi})$ ~pb at 8 TeV, are in good agreement with the standard model predictions with next-to-leading-order accuracy. The selected data are analyzed to search for anomalous triple gauge couplings involving the ZZ final state. In the absence of any deviation from the standard model predictions, limits are set on the relevant parameters. These limits are then combined with the previously published CMS results for ZZ in 4l final states,

yielding the most stringent constraints on the anomalous couplings.

62- Measurement of The Differential Cross Section for Top Quark Pair Production in Pp Collisions at $\sqrt{S} = 8\text{TeV}$

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

The European Physical Journal C, 75: 542 (2015) IF: 5.084

The normalized differential cross section for top quark pair (tt) production is measured in pp collisions at a centre-of-mass energy of 8 TeV at the CERN LHC using the CMS detector in data corresponding to an integrated luminosity of 19.7 fb⁻¹. The measurements are performed in the lepton+jets (e/μ+jets) and in the dilepton (e+e-, μ+μ-, and e±μ±) decay channels. The tt cross section is measured as a function of the kinematic properties of the charged leptons, the jets associated to b quarks, the top quarks, and the tt system. The data are compared with several predictions from perturbative quantum chromodynamic up to approximate next-to-next-to-leading-order precision. No significant deviations are observed relative to the standard model predictions.

63- Search for A Standard Model Higgs Boson Produced in Association With A Top-Quark Pair and Decaying to Bottom Quarks Using A Matrix Element Method

Ali Yehia Ellithi Kamel, Sirunyan A. M., Tumasyan A. and Brun Hugues

The European Physical Journal C, 75: 251 (2015) IF: 5.084

A search for a standard model Higgs boson produced in association with a top-quark pair and decaying to bottom quarks is presented. Events with hadronic jets and one or two oppositely charged leptons are selected from a data sample corresponding to an integrated luminosity of 19.5 fb⁻¹ collected by the CMS experiment at the LHC in pp collisions at a centre-of-mass energy of 8 TeV. In order to separate the signal from the larger tt+jets background, this analysis uses a matrix element method that assigns a probability density value to each reconstructed event under signal or background hypotheses. The ratio between the two values is used in a maximum likelihood fit to extract the signal yield. The results are presented in terms of the measured signal strength modifier, μ, relative to the standard model prediction for a Higgs boson mass of 125 GeV. The observed (expected) exclusion limit at a 95% confidence level is $\mu < 4.2$ (3.3), corresponding to a best fit value $\mu = 1.2 \pm 1.6$ -1.5.

64- Enhancement of Electric and Magnetic Properties of Mn–Zn Ferrite By Ni–Ti Ions Substitution

M.A. Ahmed, K.E. Rady and M.S. Shams

Journal of Alloys and Compounds, 622: 269-275 (2015) IF: 2.999

The effect of Fe³⁺ ions substitution in the Mn–Zn ferrite by Ni²⁺ and Ti⁴⁺ ions on the structure, magnetic and electric

properties was studied. Samples of the general chemical formula $\text{Mn}_{0.9}\text{Zn}_{0.1}\text{Ni}_y\text{Ti}_y\text{Fe}_{2-2y}\text{O}_4$; ($0.0 \leq y \leq 0.25$; step 0.05) were prepared using the standard ceramic method. XRD measurements confirm the formation of single-phase cubic spinel structure. The crystallite size (t) of samples was estimated by Scherrer's formula to be with the range (74–137 nm). Lattice constant (a_{exp}) was decreased with increasing Ni^{2+} and Ti^{4+} ions substitution. The decrease in lattice parameter is based on the smaller ionic radius of the substituted ions Ni^{2+} and Ti^{4+} than Fe^{3+} ionic radius. Molar magnetic susceptibility χ_M was measured using Faraday's method as a function of temperature from 300 K to 650 K, and the calculated magnetic constants were reported. The data showed that the room temperature χ_M decreased with increasing Ni–Ti content. dc electrical resistivity and Seebeck voltage coefficients were measured as a function of temperature using the two probe method. The substitution of Fe^{3+} ions by Ni^{2+} and Ti^{4+} ions in the Mn–Zn ferrite improve the physical properties by increasing resistivity and consequently decreasing the dielectric loss. The sample with $y = 0.05$ of Ni–Ti content shows a high dc magnetic susceptibility (9.17 emu/g mole), high Curie temperature (558 K) and relatively higher resistivity ($8.2 \times 10^3 \Omega \text{ m}$) at room temperature.

Keywords: XRD; SEM; Curie Temperature; Magnetic Susceptibility; Dc Resistivity; Seebeck Coefficient

65- Structural and Topographic Study of Ceria Nanoparticles Prepared Via Different Techniques

M.A. Ahmed, Samiha T. Bishay and Mai M. El-Masry

Superlattices and Microstructures, 77: 240-255 (2015) IF: 2.097

Nano-crystalline ceria was synthesized using four different techniques. The oleic acid was used as a surfactant in the first technique while Polysorbate 80 (Tween 80) was used instead in the third. On the other hand, the other two techniques were carried out in the absence of any surfactant.

The first technique produced samples characterized by the smallest crystallite size (2.8 nm (XRD)), and the lowest hydrodynamic diameter (DLS). Also, if the powder of these samples was dispersed in toluene, its nanoparticles would appear in high agglomerated form in (TEM) and (AFM) photographic images.

Accordingly, these samples are suitable to be used as a catalytic agent. Moreover, the results revealed that, the samples prepared in the presence of Tween 80 as a surfactant are recommended to be applied in biological fields. These samples are characterized by small crystallite size 6 nm (XRD) and high surface area (BET). They further produced completely free particles without agglomeration when their powder was dispersed in water.

The results confirmed also that, the particle size measurements using (UV–Vis) are greater by about 0.34% than the corresponding values calculated from XRD and BET data. This may be attributed to the significant role of the dispersive medium. X-ray photoelectron spectroscopy (XPS) spectrum confirmed the reverse linear proportionality between the percentage ratio of $\text{Ce}^{3+}/\text{Ce}^{4+}$ and the particle size of the investigated samples.

Keywords: A. Nanostructure; Chemical synthesis; X-Ray diffraction; Microstructure.

66- One-Dimensional Nanoferroic Rods; Synthesis and Characterization

M.A. Ahmed, U. Seddik, N. Okasha and N.G. Imam

Journal of Molecular Structure, 1099: 330-339 (2015) IF: 1.602

One-dimensional nanoferroic rods of BaTiO_3 were synthesized by improved citrate auto-combustion technology using tetrabutyl titanate. X-ray diffraction (XRD), scanning electron microscopy (SEM), energy-dispersive X-ray (EDX), transmission electron microscopy (TEM), atomic force microscopy (AFM) and Fourier transform infrared spectroscopy (FTIR) have been used to characterize the prepared sample.

The results indicated that the crystal structure of BaTiO_3 is tetragonal phase with an average crystallite size of 47 nm. SEM image gives a cauliflower-like morphology of the agglomerated nanorods.

The stoichiometry of the chemical composition of the BaTiO_3 ceramic was confirmed by EDX. TEM micrograph exhibited that BaTiO_3 nanoparticles have rod-like shape with an average length of 120 nm and width of 43 nm. AFM was used to investigate the surface topography and its roughness. The topography image in 3D showed that the BaTiO_3 particles have a rod shape with an average particle size of 116 nm which in agreement with 3D TEM result.

Keywords: Nanorods-Batio₃; Improved citrate autocombustion technique; Butyl titanate; Xrd; Sem; Tem; Ft-Ir afm.

67- Transport Properties of Ba-doped BiFeO₃ Multiferroic Nanoparticles

M. M. El-Desoky, M. M. Mostafa, M. S. Ayoub and M. A. Ahmed

Journal of Materials Science: Materials in Electronics, 26 (2015) IF: 1.569

Multiferroic nanoparticles of $\text{Bi}_{1-x}\text{Ba}_x\text{FeO}_3$ (BiBaFeO_3); ($x = 0.10, 0.15, 0.20$ and 0.25 mol\%) samples were prepared using conventional solid-state method. The nanostructural and transport properties of the prepared samples were investigated by X-ray diffraction (XRD), scanning electron microscope (SEM) and electrical conductivity. XRD patterns show the formation of BiBaFeO_3 with single-phase rhombohedral-hexagonal structure.

The particles sizes were found to be in the range 20–33 nm. SEM micrograph revealed the nanostructure consisting of small, randomly oriented and non-uniform grains. Dc conductivity shows that all samples are semiconductor and the maximum was found at $x = 0.15 \text{ mol\%}$.

This increase of the conductivity can be attributed to the decrease in grain boundary scattering due to the reduction in crystallite size. The calculated activation energy for the multiferroic nanoparticles was found to be 0.413–0.929 eV. The conduction was confirmed to obey non-adiabatic small polaron hopping (SPH). The electron–phonon interaction coefficient (γ_p) was calculated and found to be in the range of (12.79–27.21). The hopping carrier mobility varied from $1.85 \times 10^{-7} \text{ cm}^2\text{V}^{-1}\text{s}^{-1}$ to $8.01 \times 10^{-13} \text{ cm}^2\text{V}^{-1}\text{s}^{-1}$ at 418 K. The conductivity was primarily determined by hopping carrier mobility.

68- Structural, Magnetic and Electrical Properties of Bi Doped LaFeO₃ Nano-Crystals, Synthesized by Auto-Combustion Method

M. A. Ahmed, A. A. Azab and E. H. El-Khawas

Journal of Materials Science: Materials in Electronics, (26) 11: 8765–8773 (2015) IF: 1.569

La_{1-x}BixFeO₃; 0 = x = 0.2 have been prepared by citrate auto-combustion method. The results of X-ray diffraction showed that LaFeO₃ has single phase with orthorhombic structure. With increasing Bi content, traces of secondary phase of rhombohedral structure are observed. The transmission electron microscope showed that the prepared compositions have nanocrystalline structure with an increase of the particle size increases with increasing Bi content. The magnetic properties of the samples were investigated by vibrating sample magnetometer, in which saturation magnetization (M_s) and coercivity (H_c) were determined. The value of M_s increases with increasing Bi content up to x = 0.10, while H_c decreases with increasing Bi content. The temperature dependence of dielectric constant, dielectric loss and ac conductivity at different frequencies (100 kHz–5 MHz) were studied.

69- Magnetic Transitions and Butterfly-Shaped Hysteresis of Sm-Fe-Al-Based Perovskite-Type Orthoferrite

M.A. Ahmed, N.G. Imam, M.K. Abdelmaksoud and Y.A. Saeid

Journal of Rare Earths, (33) 9: 965–971 (2015) IF: 1.261

Al doped SmFeO₃ (SmFe_{1-x}Al_xO₃; 0.0 ≤ x ≤ 0.15; step 0.05) were prepared by double sintering ceramic technique. The obtained samples were crystallized in single phase structure except the sample with x=0.15. The unit cell volume was found to decrease with increasing Al substitution in orthoferrite. The effective magnetic moment ($\langle \mu \rangle_{\text{eff}}$) and the Curie constant (C) were calculated from the reciprocal of the molar magnetic susceptibility (χ^{-1}) versus absolute temperature plot and found to attain maximum value for the parent sample. The magnetic behavior showed two different magnetic transitions, viz. Néel temperature (T_N) and spin reorientation (T_{SR}) transitions. The M-H hysteresis loop of the parent sample took butterfly-shape as a result of different contributions anisotropies. From the magnetic properties measurements, it was obviously found that B-site cation dilution resulted in a drastic decrease in the magnetization. Surprisingly large value of the coercive field was obtained for the undoped sample; H_c=6198.8 Oe. Based on the mentioned results, one can recommend the use of such orthoferrite in magnetic recording media and as pining layer in spin valve for spintronic applications.

Keywords: SmFeO₃; Magnetization; FESEM; Crystal structure; Spintronics; Spin reorientation; Butterfly-shaped hysteresis; Anisotropy; Rare earths.

70- Piezoelectric Response of MWCNTs/Cement Composites

M.A. Ahmed, Y.A. Hassanean, K.A. Assaf, S.I. EL-Dek and M.A. Shawkey

Microelectronic Engineering, 146: 53-56 (2015) IF: 1.197

Display Omitted Different concentrations of MWCNTs were used to prepare cement nanocomposites. MWCNTs improved the dielectric and piezoelectric properties of cement mortar. MWCNTs could decrease the volume of pores of cement structure. MWCNTs samples were characterised by High-resolution transmission electron microscopy (HRTEM) and Brunauer-Emmett-Teller (BET) to measure the particle size and surface area of the samples, respectively. In this study, three different nanocomposites were prepared with MWCNTs to cement ratios of 0.3%, 0.7% and 1% by weight. The enhancement of the dielectric and piezoelectric properties of cement composites was achieved.

Keywords: Mwcnts; Hrtem; Bet; Cement; Dielectric.

71- Effect of Different Gd³⁺ Ion Content on The Electrical and Magnetic Properties of Lithium Antimony Ferrite

Ebtesam E. Ateia, G. Abdelatif, M. A. Ahmed and M. Abd Alla Mahmoud

Journal of Inorganic and Organometallic Polymers and Materials, 25 (5): 1011-1304 (2015) IF: 1.16

A series of Li_{0.5+z}Sb_zR_xFe_{2.5-2z-x}O₄ spinel ferrite with (R = Gd, z = 0.1 and 0.025 ≤ x ≤ 0.200) Sintered at 1100 °C with heating rate of 4 °C/min have been prepared by standard ceramic technique. Structural studies have been performed using X-ray diffraction and Fourier transform infrared spectroscopy. Ac conductivity and dielectric constant as a function frequency and temperature are carried out. The replacement of Gd³⁺ ions as a rare earth element instead of Fe³⁺ ions affect directly on the electrical and magnetic properties. By increasing frequency, the conductivity increases because the pumping force of the applied frequency helps in transferring the charge carriers between the different conduction states. Introducing Gd ions into the samples reduce the magnetic moment owing to the decreasing Fe-Fe interaction. The effective magnetic moment also decreases with increasing magnetic field intensity. The general trend of the data is the decrease in TC with increasing the rare earth ionic radius, i.e., the ferromagnetic coupling between the A and B-sites increases with the decrease of the ionic radius of the rare earth ions if it enters the spinel lattice as the result of a small probability.

Keywords: Antimony; Lithium ferrite; Dielectric constant; Magnetic properties; Curie temperature.

72- Crossover Between PEG and BT/NZF Magnetolectric Nanocomposites for Tailoring Applicable Multiferroic Materials

M. A. Ahmed, N. Okasha and N. G. Imam

Journal of Superconductivity and Novel Magnetism, 28 (2015) IF: 0.909

The composite materials with formula (1 - x) [Ni_{0.5}Zn_{0.5}Fe₂O₄ + BaTiO₃] + (x) (PEG); 0 ≤ x ≤ 1 have been prepared via citrate autocombustion method. Physical properties of composite materials consisting of different ratios of polyethylene glycol powder were investigated. With the variation of x, typical magnetic hysteresis loops have been observed in the composites at room temperature. When PEG content increases, the saturation magnetization decreases.

Meanwhile, the coercive force tends to be stable. Additionally, the dielectric constant (ϵ') and dielectric loss factor (ϵ'') of composite materials shift toward higher frequency. The value of ϵ' decreased with increasing frequency, which indicates that the major contribution to the polarization comes from orientation polarization. The composites with doping PEG polymer may be useful for technological applications such as thermistors, transducers, magnetic probes, etc.

Keywords: Composite; Magnetic properties; X-Ray diffraction; Crystal structure; Dielectric properties; Multiferroics; Dielectrics.

73- Fluorescence and Spectroscopic Characterization of Multiferroic Quantum Dots of La:BiFeO₃

M. A. Ahmed, N. G. Imam, S. I. El-Dek and Safaa K. El-Mahy

Journal of Superconductivity and Novel Magnetism, 28: 2417 (2015) IF: 0.909

Multiferroic quantum dots of Bi_{1-x}La_xFeO₃; 0.05 ≤ x ≤ 0.35 (La:BiFeO₃) prepared by double sintering ceramic technique were examined by X-ray diffraction (XRD), fluorescence, micro-Raman, and Fourier transform infrared (FT-IR) spectroscopy. La:BiFeO₃ were crystallized in a single-phase rhombohedral-hexagonal structure with space group R3c. The quantum dot size appeared as a broadening in the XRD diffraction peaks and assured from TEM micrograph. The fluorescence studies show the possible existence of an energy level above valence band maxima. The molecular signature of the samples was confirmed by FT-IR studies. Raman spectroscopy was used as a complementary spectroscopic technique hand-in-hand with FT-IR. Raman analysis reveals that lanthanum ions substitute bismuth in the rhombohedrally distorted hexagonal lattice. The results of Raman spectroscopy show good agreement with XRD and FT-IR results. This article offers such quantum dots (QDs) for photocatalytic degradation and opens a new platform in the field of photocatalysis.

Keywords: La:BiFeO₃ quantum dots; Xrd; Hrtem; Fluorescence; Raman scattering; FT-IR.

74- Characterization and Transport Properties of Mixed Ferrite System Mn_{1-x}Cu_xFe₂O₄; 0.0 ≤ x ≤ 0.7

M. A. Ahmed, A. A. Azab, E. H. El-Khawass and E. Abd El Bast

Synthesis and Reactivity in Inorganic, Metal-Organic, and Nano-Metal Chemistry, Online: (2015) IF: 0.533

A series of Cu-doped Mn ferrites with the formula Mn_{1-x}Cu_xFe₂O₄ (0.0 ≤ x ≤ 0.7) were synthesized by citrate auto combustion method. The structural characterization and morphology of the samples were examined by X-ray diffraction (XRD), energy-dispersive X-ray analysis (EDX), and scanning electron microscopy (SEM). XRD and EDX confirmed the formation of single-phase cubic spinel structure. The electrical conductivity (σ), dielectric constant (ϵ'), and dielectric loss factor (ϵ'') were studied as a function of temperature at different frequencies ranged from 100 kHz to 5 MHz. Increasing is observed in the values of σ, ϵ' , and ϵ'' with substitution of copper up to x = 0.3. Above this value, a decrease in σ, ϵ' , and ϵ'' was detected.

Keywords: Nano ferrite; Sem; Edx; Conductivity and dielectric.

Dept. of Zoology

75- Mitochondrial Genome Analyses Suggest Multiple Trichuris Species in Humans, Baboons, and Pigs from Different Geographical Regions

Mohamed B. F. Hawash, Lee O. Andersen, Robin B. Gasser, Christen Rune Stensvold and Peter Nejsum

Plos Neglected Tropical Diseases, 1-16 (2015) IF: 4.446

Background The whipworms *Trichuris trichiura* and *Trichuris suis* are two parasitic nematodes of humans and pigs, respectively. Although whipworms in human and non-human primates historically have been referred to as *T. trichiura*, recent reports suggest that several *Trichuris* spp. are found in primates. **Methods and Findings** We sequenced and annotated complete mitochondrial genomes of *Trichuris* recovered from a human in Uganda, an olive baboon in the US, a hamadryas baboon in Denmark, and two pigs from Denmark and Uganda. Comparative analyses using other published mitochondrial genomes of *Trichuris* recovered from a human and a porcine host in China and from a François' leaf-monkey (China) were performed, including phylogenetic analyses and pairwise genetic and amino acid distances. Genetic and protein distances between human *Trichuris* in Uganda and China were high (~19% and 15%, respectively) suggesting that they represented different species. *Trichuris* from the olive baboon in US was genetically related to human *Trichuris* in China, while the other from the hamadryas baboon in Denmark was nearly identical to human *Trichuris* from Uganda. Baboon-derived *Trichuris* was genetically distinct from *Trichuris* from François' leaf monkey, suggesting multiple whipworm species circulating among non-human primates. The genetic and protein distances between pig *Trichuris* from Denmark and other regions were roughly 9% and 6%, respectively, while Chinese and Ugandan whipworms were more closely related. **Conclusion and Significance** Our results indicate that *Trichuris* species infecting humans and pigs are phylogenetically distinct across geographical regions, which might have important implications for the implementation of suitable and effective control strategies in different regions. Moreover, we provide support for the hypothesis that *Trichuris* infecting primates represents a complex of cryptic species with some species being able to infect both humans and non-human primates.

Keywords: *Trichuris* species; Humans; Baboons.

76- A Genetic Analysis of Trichuris Trichiura and Trichuris Suis from Ecuador

Hayley Meekums, Mohamed BF Hawash, Alexandra M Sparks, Yisela Oviedo, Carlos Sandoval, Martha E. Chico, J Russell Stothard, Philip J. Cooper, Peter Nejsum and Martha Betson

Parasites & Vectors (2015) IF: 3.43

Background: Since the nematodes *Trichuris trichiura* and *T. suis* are morphologically indistinguishable, genetic analysis is required to assess epidemiological cross-over between people and pigs. This study aimed to clarify the transmission biology of trichiuriasis in Ecuador.

Findings: Adult *Trichuris* worms were collected during a parasitological survey of 132 people and 46 pigs in Esmeraldas Province, Ecuador. Morphometric analysis of 49 pig worms and 64 human worms revealed significant variation. In discriminant

analysis morphometric characteristics correctly classified male worms according to host species. In PCR-RFLP analysis of the ribosomal Internal Transcribed Spacer (ITS-2) and 18S DNA (59 pig worms and 82 human worms), nearly all *Trichuris* exhibited expected restriction patterns. However, two pig-derived worms showed a “heterozygous-type” ITS-2 pattern, with one also having a “heterozygous-type” 18S pattern. Phylogenetic analysis of the mitochondrial large ribosomal subunit partitioned worms by host species. Notably, some Ecuadorian *T. suis* clustered with porcine *Trichuris* from USA and Denmark and some with Chinese *T. suis*.

Conclusion: This is the first study in Latin America to genetically analyse *Trichuris* parasites. Although *T. trichiura* does not appear to be zoonotic in Ecuador, there is evidence of genetic exchange between *T. trichiura* and *T. suis* warranting more detailed genetic sampling.

Keywords: *Trichuris*; Whipworm; Human; Pig; Ecuador; Zoonosis; Phylogenetics.

77- A Induction of Protective Immune Responses Against Schistosomiasis Haematobium in Hamsters and Mice using Cysteine Peptidase-based Vaccine

Hatem Tallima, John P. Dalton and Rashika El Ridi

Original Research Article, (2015)

One of the major lessons we learned from the radiation-attenuated cercariae vaccine studies is that protective immunity against schistosomiasis is dependent on the induction of T helper (Th)1-/Th2-related immune responses. Since most schistosome larval and adult-worm-derived molecules used for vaccination uniformly induce a polarized Th1 response, it was essential to include a type 2 immune response-inducing molecule, such as cysteine peptidases, in the vaccine formula. Here, we demonstrate that a single subcutaneous injection of Syrian hamsters with 200mg active papain, 1 h before percutaneous exposure to 150 cercariae of *Schistosoma haematobium*, led to highly significant ($P < 0.005$) reduction of $>50\%$ in worm burden and worm egg counts in intestine. Immunization of hamsters with 20mg recombinant glyceraldehyde 3-phosphate dehydrogenase (rSG3PDH) and 20mg 2-cys peroxiredoxin-derived peptide in a multiple antigen peptide construct (PRX MAP) together with papain (20mg/hamster), as adjuvant led to considerable (64%) protection against challenge *S. haematobium* infection, similar to the levels reported with irradiated cercariae. Cysteine peptidases-based vaccination was also effective in protecting outbred mice against a percutaneous challenge infection with *S. haematobium* cercariae. In two experiments, a mixture of *Schistosoma mansoni* cathepsin B1 (SmCB1) and *Fasciola hepatica* cathepsin L1 (FhCL1) led to highly significant ($P < 0.005$) reduction of 70% in challenge *S. haematobium* worm burden and 60% reduction in liver egg counts. Mice vaccinated with SmCB1/FhCL1/rSG3PDH mixture and challenged with *S. haematobium* cercariae 3 weeks after the second immunization displayed highly significant ($P < 0.005$) reduction of 72% in challenge worm burden and no eggs in liver of 8–10 mice/group, as compared to unimmunized mice, associated with production of a mixture of type 1- and type 2-related cytokines and antibody responses.

Keywords: *Schistosoma haematobium*; Schistosomiasis vaccine; Cysteine peptidases; Papain; Cathepsins; Type 1 and 2 immune responses; Larval excretory–secretory products.

Faculty of Agriculture

Dept. of Agricultural Biochemistry Section

78. Enteromorpha Compressa, Gelidium Pulchrum, Macro Algae from Egypt Exhibit Potent Anticancer, Antioxidant and Anti-Inflammatory Activities

Faten About Eolla and Mahgoub M. Ahmed

International Journal of Phytomedicine, 7(1): 34 (2015)

Over the past several decades, algae and their extracts have generated an enormous amount of interest in the pharmaceutical industry as a fresh source of bioactive compounds. The aim of this work was to evaluate anticancer, antioxidant and anti-inflammatory properties of absolute and aqueous (50%) methanol extracts of both *Gelidium pulchrum* and *Enteromorpha compressa* algae. In vitro cytotoxicity of the extracts was tested by MTT and trypan blue technique against two malignant cell lines (HeLa and EACC). The effect of methanol extracts on caspase-3 and Bax gene protein expression levels was evaluated as indicator of apoptosis induction in treated- HeLa cells. The antioxidant activity was evaluated using three methods, (DPPH, Reducing power and ABTS) and anti-inflammatory activity measured by two systems (in vivo and in vitro). The obtained results showed that all studied extracts expressed significant in vitro cytotoxic activity toward HeLa, and EACC cell lines. The data revealed up regulation of both Bax and caspase-3 protein expressions levels in treated-HeLa cell line. In DPPH assay aqueous MeOH extracts of *Gelidium pulchrum* exhibit maximum inhibition ($IC_{50} = 51 \pm 2.3$). The highest reducing power was $179.3 \pm 4.7 \mu\text{g/mL}$ GAE in aqueous MeOH extract of *Gelidium pulchrum*. The data also showed that all tested extracts have anti-inflammatory activity against carrageenan induced paw oedema. While absolute MeOH extract of *Gelidium pulchrum* has maximum protection ($71.7 \pm 1.7\%$) in membrane stabilization test. Data obtained indicate the potential of these algal extracts for the antitumor through induction of apoptosis in cancer cells in addition to, the antioxidant and anti-inflammatory actions. This biological action is interesting for further isolation and identification of new natural anticancer and antioxidant compounds.

Keywords: *Gelidium pulchrum*; *Enteromorpha compressa*; Anticancer; Apoptosis; Antioxidant and anti-inflammatory Activities.

79. GC-MS Analysis of Bioactive Phytochemicals Present in Ethanolic Extracts of Leaves of Annona Muricata: A Further Evidence for its Medicinal Diversity

Yahaya Gavamukulya, Faten Abou-Elella, Fred Wamunyokoli and Hany A El-Shemy

Pharmacognosy Journal, 7 (5): 300 (2015)

Background: Folk medicine has taken an important place especially in developing countries where limited health services are available. However, the absence of scientific evaluation of medicinal plants may cause serious adverse effects.

Objective: To analyze the phytochemical composition of the ethanolic extracts of leaves of *Annona muricata* using gas chromatography mass spectroscopy (GC-MS).

Materials and Methods: GC-MS Analysis was used. Results: The GC-MS Analysis revealed 25 constituents of which 12 of the compounds were identified. The major constituents were two unidentified compounds with percentage peak areas of 23.51% and 16.8%. Of the identified compounds, the outstanding in composition were 7-Tetradecenal, (Z) (peak area 9.39%), n-Hexadecanoic acid (peak area 7.12%), Oleyl Alcohol (peak area 6.15%), Phytol (peak area 5.61%), cis, cis, cis-7,10,13-Hexadecatrienal (peak area 4.26%), 2-Pentadecanol (peak area 3.93%), 9,12-Octadecadienoic acid, ethyl ester (peak area 3.21%), 1,2-Benzenedicarboxylic acid, butyl octyl ester (peak area 2.67%), and 1,E- 11,Z-13-Octadecatriene (peak area 2.15%), while the rest had less than 2% composition by peak area.

Conclusion: The current study suggests that ethanolic extracts of leaves of *Annona muricata* are a potent therapeutic agent and paves the way for the development of several treatment regimens based on compounds from this extract.

Keywords: *Annona muricata*; Ethanolic extracts; Gc-MS; Medicinal diversity; Phytochemicals.

Dept. of Animal Production

80. Influence of Ration Containing Tomato Pomace Silage on Performance of Lactating Buffaloes and Milk Quality

H.M. Ebeid, R.M.A. Gawad and A.E.M. Mahmoud

Asian Journal of Animal and Veterinary Advances, 10: 14-24 (2015)

The main objective of the current study is to evaluate tomato pomace silage as a source of roughage feed for lactating animals. Twenty lactating Egyptian buffaloes at the second/third season of lactation were used in the present study. The animals were randomly divided to two groups (ten buffaloes in each) using the complete random design. The animals were introduced to treatments starting on 70 DIM and continued for six weeks. The treatments were, control ration (R1) and it received a Corn Silage (CS) based ration supplemented with Concentrate Fed Mixture (CFM), Clover (C) and Rice Straw (RS) without Tomato Pomace Silage (TPS). The second ration (R2) was similar to the ration in first group with replacing clover by tomato pomace silage. The digestibility coefficients of dry matter, neutral and acid detergent fiber and nutritive values were increased ($p < 0.05$) significantly with tomato pomace silage feeding. The protein and cellulose digestibility coefficients were negatively influenced ($p < 0.05$) by tomato pomace feeding. The feeding of tomato pomace did not alter actual milk yield but it increased ($p < 0.05$) 7% fat-corrected milk yield and milk fat percentage. Other milk composition percentages were not significantly affected. Feeding tomato pomace increased ($p < 0.05$) proportions of polyunsaturated fatty acids, however, milk protein amino acid fraction was negatively affected in most cases. Inclusion of tomato pomace silage in the ration of lactating buffaloes improved feed utilization and economic efficiency compared to control ration. It was concluded that the nutritional value, feed conversion and economic efficiency of rations contained tomato pomace silage improved when used at rate 25% of ration without any adverse effect on performance of lactating buffaloes.

Keywords: Tomato pomace; Dairy buffaloes; Digestibility and milk yield; Fatty and amino acids.

81. Effect of Exogenous Fibrolytic Enzyme Application on Productive Response of Dairy Cows At Different Lactation Stages

N.E. El-Bordeny, A.A. Abedo, H.M. El-Sayed, E.N. Daoud, H.S. Soliman and A.E.M. Mahmoud

Asian Journal of Animal and Veterinary Advances, 10 (5): 226-236 (2015)

This study aimed to evaluate effect of using exogenous fibrolytic enzymes on productive performance of dairy cows and milk curve response at different lactation stages. One hundred and sixteen multiparous cows were randomly assigned into two groups; fifty eight cows in each. Each group was contained 12 cows in early lactation 40 ± 6 Days In Milk (DIM), 18 cows in mid lactation (122 ± 4 DIM) and 29 cows in late lactation (216 ± 2 DIM). The animals were fed total mixed ration with or without 15 g fibrolytic enzymes head⁻¹ day⁻¹ for five weeks. Adding fibrolytic enzymes to dairy cows ration caused a significant increase in serum total protein and glucose concentration compared to control group, while Albumin, globulin, ALT, AST, alkaline phosphates activity and total bilirubin and urea concentration were not affected. Insignificant differences were observed in feed intake as dry matter, total digestible nutrient, crude protein and net energy lactation between the two groups. Enzymes supplementation to dairy cows rations increased milk yield, 4% FCM and ECM as well as milk fat contents compared to control group, while insignificant increased protein, lactose, total solid and solid not fat contents. Feed conversions as well as nitrogen efficiency utilization were significantly improved for treated group compared to control. Fibrolytic enzyme supplementation to dairy cows ration slightly increased positive slope (b-value) at early lactation compared to control group and no significant difference at mid lactation was observed. While, significant decrease in negative b-value was noticed for cows fed ration supplemented with fibrolytic enzymes compared to control group. It could be concluded that fibrolytic enzymes supplementation to dairy cows ration at early, mid and lactation has the potential to improve its productive performance as well as it is affect milk curve response.

Keywords: Fibrolytic enzymes; Milk yield; Feed conversion; Milk curve response.

82. Effect of Common Reed (*Phragmites Australis*) Silage on Performance of Growing Lambs

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Asian Journal of Animal Sciences, 9 (1): 1-12 (2015)

The present study aimed to evaluate the effect of common reed silage on the performance of growing lambs. Twenty Barki (33 ± 0.57 kg) and 9 months old were divided into four equal groups in 90 days experimental period. The treatments were; (C) as a control group were animals fed clover hay plus Concentrate Feed Mixture (CFM), while, the experimental animals were fed (R1) reed (*Phragmites australis*) silage with molasses (RSM) plus CFM, R2) Reed Silage with Molasses and Formic acid (RSMF) plus CFM and (R3) Reed Silage with Molasses and Lactic acid bacteria (RSML) plus CFM. The chemical composition indicated that control ration was insignificantly little pitting lower in crude fiber and its constituents and higher in NFE comparing to the other rations. The digestibility

coefficients (%) of nutrients (EE, CF, NDF, ADF, Cellulose and hemicellulose) were insignificantly different. On the other hand, DM, OM and CP digestibilities were significantly higher with R1 comparing to the control ration. There was no significant difference for nutritive value estimates of TDN, DCP, GE and DE among all tested rations. Similarly, the nitrogen balance was insignificantly differed among all treatments. Rumen pH of all treatments was significantly decreased at 3 h post feeding and then increased at 6 h post feeding. In contrary both ruminal ammonia nitrogen and total volatile fatty acids increased at 3 h post feeding and then decreased at 6 h post feeding. Blood metabolites of Albumin, Globulin and GOT were insignificantly differed for all tested rations, while total proteins and creatinine were significantly higher in R2, urea significantly higher in control ration and GPT significantly higher with R1. In digestion trail, feed intake as DM and TDN was significantly higher in the control group, while DCP intake was insignificantly differed. Treatments feed conversion was insignificantly differed. It is concluded that reed silage was quite suitable as an alternative fodder for lambs growing with some minor additives that keep protein and energy on the demanded requirements.

Keywords: Common reed; Silage; Lambs; Digestion.

83. Effect of Different Dietary Protein Sources on Amino Acids and Urea Nitrogen Contents of Dairy Buffaloes Milk

A.M. Abd El-Gawad, Y.I. El-Talty, K.M. Elsayy, A.E.M. Mahmoud and M.A. Rawash

Asian Journal of Animal Sciences, 9 (3): 119-127 (2015)

This study aimed to evaluate the effects of feeding lactating buffaloes on different dietary protein sources on amino acids profile of milk and milk urea nitrogen. Eight lactating Egyptian buffaloes in second lactation season weighed 730 ± 32 kg in average were used after 8 weeks after calving, the animals arranged in three swing over design. Tested sources protein were Soybean Meal (SBM), Cotton Seed Meal (CSM) and Sunflower Meal (SFM). Rations differed in source of protein supplement: Ration one (R1) contained three meals, ration two (R2) contained soybean meal and cottonseed meal; ration three (R3) contained soybean meal and sunflower meal and ration four (R4) contained soybean meal alone. Result indicated that SBM had higher essential, non-essential amino acids values. Also, total Non-Essential Amino Acids (NEAA) were numerically higher for SBM (22.29) vs. CSM (20.46) and SFM (14.78). The ratio EAA/NEAA value in SFM (0.91) was higher than soybean meal (0.89) and cotton seed meal (0.81). Ration three had the highest in most of essential amino acids, non-essential amino acids and total EAA (30.39). Total NEAA value was the highest in R3 (33.52) compared with other rations. Ration one recorded the highest values in most of essential, non-essential amino acids and total EAA and ratio of EAA/NEAA in milk compared with other experimental rations. Whereas, R4 had the lowest ratio of EAA/NEAA in milk. Milk urea nitrogen was significantly lower with R1 (11.67) compared with R4 which recorded highest value (12.97) followed by R2 (12.78) and R3 (11.90). It could be concluded that feeding lactating buffaloes on more than one source of protein in its rations had a positive effect on amino acids profile in milk and decrease milk urea nitrogen (MUN) level.

Keywords: Dietary protein; Soybean meal; Cottonseed meal; Sunflower meal; Amino acids; Milk urea.

Dept. of Economic Entomology and Insecticides

84. Beauveria Bassiana (Balsamo), A Potential Mycopesticide for Efficient Control of The Honey Bee Ectoparasitic Mite, Varroa Destructor Anderson and Trueman

Sewify, Yasser Ibrahim and M Salah El-Deen

Egyptian Journal of Biological Pest Control, 25(2): 333-337 (2015) IF: 0.273

The ectoparasitic mite *Varroa destructoris* Anderson and Trueman is considered a destructive pest of honey bee *Apis mellifera*. Potentiality of using the entomopathogenic fungi *Beauveria bassiana* (Balsamo) as mycoacaricide against *V. destructor* was evaluated. Considerable effect of *B. bassiana* on *Varroa* mite numbers was recorded in treated colonies compared to the control. There were significant differences in mean numbers of mite mortality rates between treated and untreated colonies. Results indicated that conidial concentration of 5×10^6 spores/g caused higher mortality rate compared to the other tested concentrations. Results showed that *B. bassiana* had a good potential on *V. destructor* when was dusted more than one time (0, 6 and 10day). Scanning electronic microscopy examination of infected mite showed abundant hyphal growth and sporulation on treated mite cuticle. The results indicated that dusting of colonies with fungal conidiospores caused a reduction in the mite population reached 47.68, 33.44, 70.00 and 46.38%, 13 days after applications at concentrations of 1×10^6 conidia/g, 2.5×10^6 conidia/g, 5×10^6 conidia/g, and 7.5×10^6 conidia/g, respectively. The results showed also that the impact of fungus on workers bees was very low. Obtained results can suggest using *B. bassiana* as a potential effective bioacaricide against *V. destructor* in honey bee colonies.

Keywords: Entomopathogenic fungi; *Beauveria bassiana*; *Varroa destructor*; *Apis mellifera*.

Dept. of Food Science and Technology

85. Anticancer and Anti-Oxidant Potentials of Ethanolic Extracts of Phoenix Dactylifera, Musa Acuminata and Cucurbita Maxima

Faten Abou-Elella and Rasha Mourad

Research Journal of Pharmaceutical, Biological and Chemical Sciences, 1(6): 710 (2015)

The total phenols and flavonoids, anticancer and antioxidant activities ethanolic extracts of three plants (*Phoenix dactylifera* *Musa acuminata* and *Cucurbita maxima*) was determined. The total phenolic contents was computed to be (342 µg/mL gallic acid equivalents in ethanol extract of banana fruit while the highest total flavonoids was in ethanol extract of molasses date (1424µM as rutin equivalent). In vitro anticancer activity was determined using EACC and HeLa cell lines. In vitro anticancer activity against EACC revealed that the maximum inhibition was observed in ethanol extract of pumpkin seeds (100% at 100µg/ml) while the maximum inhibition against HeLa cell line was observed in ethanol extract of date seeds (90% at 100µg/ml). The antioxidant activity was determined using three different methods (DPPH, ABTS scavenging activity and reducing power). DPPH scavenging activity was found to be 85 and 84 % in ethanol extracts of date seed and banana fruit,

respectively. ABTS scavenging activity was found to be 98, 98, 95 and 95 % in ethanol extracts of seeds, molasses of date, fruit and peel of banana, respectively. The reducing power was 873, 833 and 871 µg/mL (GAE) in the ethanol extracts of molasses, seeds and fruit of date. Four different formulas were prepared from tested plants and the sensory evaluation of these formulas showed that prepared formulas were judged as highly accepted. The results showed that ethanol extracts of date parts, banana peel pumpkin seeds are promising new antioxidant and anticancer agents and prepared formulas could be used as a daily healthy supplement.

Keywords: Anti-cancer; Antioxidant; Phoenix dactylifera; Musa acuminata and cucurbita maxima.

Dept. of Genetics

86. Anthocyanin Biosynthesis in Gerbera Cultivar 'Estelle' and Its Acyanic Sport 'Ivory'

Hany Bashandy, Milla Pietiäinen, Elisabete Carvalho, Kean-Jin Lim, Paula Elomaa, Stefan Martens and Teemu H. Teeri

Planta, 242: 601-611 (2015) IF: 3.263

Identification of distinct allelic versions for dihydroflavonol 4-reductase in gerbera cultivars reveals that gerbera DFR enzymes have strong substrate preference in vivo that is not reflected to the activity in vitro. Flavonoids in the model ornamental plant *Gerbera hybrida* consist of flavones, flavonols and anthocyanins. Anthocyanins accumulate in the adaxial epidermis of petals and give the different cultivars their characteristic red and violet colour. Both pelargonidin and cyanidin derivatives are found in gerbera, but none of the cultivars contain delphinidin. 'Ivory', a cultivar with white petals, is a sport of the pelargonidin-containing pink cultivar 'Estelle', i.e. it originates from an acyanic branch of 'Estelle'. In this work, four different alleles encoding dihydroflavonol 4-reductase (DFR) were identified in gerbera cultivars. We found that, in contrast to 'Estelle' with the functional allele GDFR1-2, 'Ivory' carries a mutation in this gene that results in an inactive enzyme. Interestingly, 'Ivory' also expresses a second, nonmutated allele (GDFR1-3) in petal epidermi, leading to extractable DFR activity but not to anthocyanin biosynthesis. The second allele encodes a protein identical in amino acid sequence to the DFR of the cyanidin-containing variety 'President'. Pelargonidin-containing cultivars do not react to the flavonoid 3'-hydroxylase inhibitor tetracyclacis, but cyanidin-containing cultivars lose their colour, instead of starting to synthesise pelargonidins, indicating the specificity of GDFR1-3 for the cyanidin pathway. This explains why petals of 'Ivory' are white, even when it has lost only one of the two enzymatically functional DFR forms, and shows that anthocyanin biosynthesis in gerbera is under more complex regulation than earlier thought.

Keywords: Dihydroflavonol 4-Reductase; Flavonoids; Gerbera; hybrida.

87. Within Leaf Variation Is The Largest Source of Variation in Agroinfiltration of *Nicotiana Benthamiana*

Hany Bashandy, Salla Jalkanen and Teemu H. Teeri

Plant Methods, 11:47: 1-7 (2015) IF: 3.102

Background: Transient gene expression utilizing syringe agroinfiltration offers a simple and efficient technique for different transgenic applications. Leaves of *Nicotiana benthamiana* show reliable and high transformation efficiency, but in quantitative assays also a certain degree of variation. We used a nested design in our agroinfiltration experiments to dissect the sources of this variation.

Results: An intron containing firefly luciferase gene was used as a reporter for agroinfiltration. A number of 6 week old tobacco plants were infiltrated for their top leaves, several samples were punched from the leaves after 2 days of transient expression, and protein extracts from the samples were repeatedly measured for luciferase activity. Interestingly, most of the variation was due to differences between the sampling spots in the leaves, the next important source being the different leaves on each plant. Variation between similar experiments, between plants and between repetitive measurements of the extracts could be easily minimized.

Conclusions: Efforts and expenditure of agroinfiltration experiments can be optimized when sources of variation are known. In summary, infiltrate more plants but less leaves, sample more positions on the leaf but run only few technical replicates.

Keywords: *Agrobacterium* mediated transformation; Agroinfiltration; Estradiol induction; Luciferase expression; Nested design.

Dept. of Horticulture Pomology

88. Postharvest High Carbon Dioxide and Hot Water Treatments for Maintaining Quality of Ewase Mango Fruits

Dorria, M. Ahmed, Aml, R. M. Yousef and H. M. Kamel

International Journal of Chemtech Research, 8: 75-86 (2015)

Postharvest quality of Ewase mangoes (*Mangifera indica* L) is vital to ensure proper ripening and good quality. The effect of postharvest applications of modified atmosphere and hot water treatments were applied to Ewase mango fruits at the two seasons of 2012 and 2013. Mature Ewase fruits were subjected to modified atmosphere (MA) at 2% or 7% CO₂. Other mangoes were also subjected to hot water dipping (HWD) at 48 or 52°C for 10 min. All treated and control fruits were stored at 10°C with 85-90% relative humidity for 4 weeks. Responses of fruit quality characteristics as physical and chemical properties to MA and HWD throughout storage period were studied. Fruit quality characteristics i.e. weight losses, decay percentage, CO₂ production (respiration rate), skin color (hue angle), fruit firmness, total soluble solids content (TSS), titratable acidity (TA), and ascorbic acid (VC) content, were evaluated periodically after 7 days of storage for 4 weeks. Among different treatments, weight loss percentage was lower in fruit treated with HWD treatments than untreated ones (4.09%). Meanwhile, there were inversely relation between CO₂ concentrations and mango fruit weight loss percentage. All treatments (MA and HWD) did not have any discarded fruits until two weeks of storage period, while control fruits exhibited the highest percent of decay (33%). Treated fruits with high carbon dioxide 7% gave the least CO₂ production (25 mg kg⁻¹ hr⁻¹) with the same pattern after hot water dipping. The highest value of CO₂ production (33.5 mg kg⁻¹ hr⁻¹) recorded by HWT at 48°C compared control fruits (37 mg kg⁻¹ hr⁻¹). Ewase Mango peel color change from

green to yellow progressed rapidly in untreated fruits from the initial time (114.80) to (74.14) at the end of storage at 10oC for 4 weeks. HWD treatments showed maximum color value (84.13) at 52°C followed by (82.21) at 48oC for 10 min. The highest hue angle values (93.10 and 89.12) in MA treatments recorded by 7% CO₂ and 2% CO₂ respectively. Treated fruits with CO₂ at 7% gave the highest firmer fruit (11.87) followed by CO₂ at 2% (11.70) compared with untreated fruit (8.70). A similar decline in fruit firmness was found in mangoes stored at 10oC after dipping in hot water (HWD) at 48 and 52oC for 10 min with less value Fruits treated with MA concentrations gave the highest SSC and VC content with lower titratable acidity. Meanwhile, HWD applications had less TSS and VC content with higher TA percent in both conditions throughout storage period.

Keywords: Ewase mango; Modified atmosphere; Carbon dioxide; Hot water; Fruit quality.

Faculty of Veterinary Medicine

Dept. of Food Hygeine and Control

89- Determination of Sources of Escherichia Coli on Beef by Multiple-Locus Variable-Number Tandem Repeat Analysis

Xianqin Yang, Frances Tran, Mohamed k. Youssef and Colin O. Gill

Journal of Food Prrotection, 78: 1250-1419 (2015) IF: 1.849

The possible origin of Escherichia coli found on cuts and trimmings in the breaking facility of a beef packing plant was examined using multiple-locus variable-number tandem repeat analysis. Coliforms and E. coli were enumerated in samples obtained from 1 60carcasses that would enter the breaking facility when work commenced and after each of the three production breaks throughout the day, from the conveyor belt before work and after each break, and from cuts and trimmings when work commenced and after each break. Most samples yielded no E. coli, irrespective of the surface types. E. coli was recovered from 7 (<5%) carcasses, at numbers mostly =1.0 log CFU/160,000 cm². The log total numbers of E. coli recovered from the conveyor belt, cuts, and trimmings were mostly between 1 and 2 log CFU/80,000 cm². A total of 554 E. coli isolates were recovered. Multiple-locus variable-number tandem repeat analysis of 327 selected isolates identified 80 distinct genotypes, with 37 (46%) each containing one isolate. However, 28% of the isolates were of genotypes that were recovered from more than one sampling day. Of the 80 genotypes, 65 and 2% were found in one or all four sampling periods throughout the day. However, they represented 23 and 14% of the isolates, respectively. Of the genotypes identified for each surface type, at least one contained =9 isolates. No unique genotypes were associated with carcasses, but 10, 17, and 19 were uniquely associated with cuts, trimmings, and the belt, respectively. Of the isolates recovered from cuts, 49, 3, and 19% were of genotypes that were found among isolates recovered from the belt, carcasses, or both the belt and carcasses, respectively. A similar composition was found for isolates recovered from trimmings. These findings show that the E. coli found on cuts and trimmings at this beef packing plant mainly originated from the conveyor belt and that small number of E. coli strains survived the daily cleaning and sanitation process, thus persisting in the plant.

Dept. of Microbiology

90- Immunological Properties of Anti Naja Haje Arabica (the Arabian Cobr) Snake Venom Antibodies Prepared in Chicken

Ihab M. Moussa, Ashgan M. Hessain, Abdullah A. Al-Arfaj, Khalid M. Farouk and Salah A. Selim

International Journal of Pharmacology, 11 (8): 956-959 (2015) IF: 0.709

Naja haje arabica (Arabian cobra) is the major cause of snake-bite mortality in Kingdom of Saudi Arabia. The treatments of the snake bite envenomation occur by anti-snake venom produced in horses previously immunized with a mixture of venom. Therefore, one of the main objectives of the current study is to produce anti Naja haje arabica immunoglobulin in high titer from the yolk of chickens by immunization of two groups of white leghorn chickens (24 weeks old) with 30 µg of Naja haje arabica emulsified in Freund's Complete Adjuvant. Chickens has been immunized with booster doses of increasing concentrations of venom at two weeks' time intervals to increase the antivenom titer in the egg yolk. The characteristic IgY band of 180 kDa was observed on SDS-PAGE of the final extracted product. The ELISA antibody values reached the plateau at 2nd weeks following 4th booster dose and remained significantly high up to the end of observation period. The measured antibody titers showed significant increase following the first, second, third booster doses. However, there were no differences between the third and the fourth booster doses. Western blot technique was used to evaluate the specificity of antivenom IgY antibodies. The LD₅₀ of the Naja haje arabica venom has been found to be 0.4 mg kg⁻¹ body weight of white Swiss mice and 100% protection against 40 LD₅₀ of Naja haje arabica venom could be obtained by 15 mg mL⁻¹ anti Naja haje Arabica specific IgY. The neutralizing power of the anti Naja haje arabica venom IgY and the absence of pyrogen, bacterial and fungal contaminations or toxic products, encourage the use of egg yolk as a cheap source of anti-venom polyclonal antibodies.

Keywords: Naja haje; Antivenom; Western blot technique; Immunoglobulins; Lethal dose 50.

91- Isolation, Characterization and Antibigram of Pathogenic Escherichia Coli Recovered from Broiler Chicken, Riyadh, Saudi Arabia

A. A. Al-Arfaj, A. M. Hessain, H. A. Hemeg, Kh. F. Mohamed and I. M. Moussa

The Journal of Animal & Plant Sciences, 25(6): 1540-1542 (2015) IF: 0.448

Present study was conducted on 200 fecal samples of broilers chickens suffering from colisepticemia from poultry farms in Riyadh, Saudi Arabia. Escherichia coli strains were isolated from 88 (44%) samples. Out of E. coli strains, 79 (89.77%) belonged to O :126K71, O158: K-, O114: K90, O111: K58, O78: K80 and O119: K69. Whereas, O126: K71, O158: K- and O114: K90 were the most prevalent. The antibiotic sensitivity pattern showed that all isolates were totally resistant to ampicillin. chloramphenicol and streptomycin (100%). Resistance against erythromycin and naldixic acid reached 81.01 % and was recorded in 20 strains O126: K71, 17 strains O158: K-, 15 strains O114: K90, 12 strains O111: K58, and decrease to

78.48% against ciprofloxacin in O126: K71, O114 :K90, O111: K58, O78: K80 and O119: K69 strains. It should note that the recovered isolates were 84.81% intermediate to cephalixin and 53.16% sensitive gentamycin. This study highlights the high resistance of *E. coli* to antibiotics constitutes a threat to poultry industry in Saudi Arabia and the need for continuous surveillance of antibiotic sensitivity pattern of *E. coli* with a view to selecting appropriate therapy.

Keywords: Antibigram; Avian pathogenic escherichia coli; Serotypes.

92- Biofilm-Producing Staphylococcus Aureus Screening in Poultry Farms and Abattoirs

A.M. Erfan and Sh. Marouf

Journal of Animal and Veterinary Advances, 14(10): 273-279 (2015)

Surveillance on *Staphylococcus aureus* in poultry farms and poultry abattoirs in 2015 in Egypt was applied for determining the biofilm formation, an important virulence and antibiotic resistance determinant. Sixty-seven (68.3%) out of 98 poultry and environmental samples collected in this study were positive for *S. aureus*. For phenotypic analysis of biofilm formation, Microtitre Plate (MTP) and Congo Red Agar (CRA) tests revealed 63 (94.02%) and 59 (88.05%) positive samples, respectively. A high correlation (94.02%) between MTP and CRA tests was encountered. The PCR showed variable results for genes encoding Microbial Surface Components Recognizing Adhesive Matrix Molecules (MSCRAMMs) and for those encoding Polysaccharide Intercellular Adhesion/Poly-N-Succinyl- β -1-6-Glucosamine (PIA/PNSG). Partial DNA sequencing of 606 nucleotides of the *icaR-icaA* fragment in 21 selected strains showed 98.2%-100% identity with two clearly distinct phylogroups. This study indicated that biofilm producing *S. aureus* are widely distributed in poultry and poultry abattoirs in Egypt.

Keywords: *S. Aureus*; Poultry; Biofilm; Abattoirs; Pcr; Sequence; Mtp; Cra

Dept. of Obstetrics, Reproduction & Artificial Insemination

93- Investigation The Mrna Expression of KISS1 and Localization of kisspeptin in The Testes of Shiba Goats and Its Relationship with Thepuberty and Steriodogenic Enzymes

Enzymes Haney Samira, Kentaro Nagaokaa, Aly Karenc, Eman Ahmedd, Mohamed El Sayedb and Gen Watanabea

Small Ruminant Research, 133: 1-6 (2015) IF: 1.125

The objectives of the present study were to investigate the mRNA expression of KISS1 and localization of kisspeptin in the testes of Shiba goats. Additionally, its relationship with the puberty was investigated. Testes from prepubertal (1 month; n = 3), and postpubertal Shiba goats (17 \pm 1.5 months; n = 4) were collected by surgical castration. Plasma testosterone (T) and estradiol (E2) were measured just before the castration using radioimmunoassay. Testicular expression of mRNAs encoding KISS1, GPR54 and the following steroidogenic enzymes: cytochrome P450 side-chain cleavage (P450scc; CYP11A1

gene), 3 β -hydroxysteroid dehydrogenase (3 β HSD; HSD3B1 gene), cytochrome P450, 17 α -hydroxylase/17, 20lyase (P450c17; CYP17 gene), and cytochrome P450 aromatase (P450arom; CYP19 gene) were quantified by real time PCR. The localization of kisspeptin in testes was determined by immunohistochemistry. Results revealed high plasma T and E2 in postpubertal goats compared to prepubertal goats. High significant increases ($P < 0.05$) of mRNAs encoding KISS1, GPR54, CYP11A1, HSD3B1, CYP17, and CYP19 genes in the testes of postpubertal goats compared to prepubertal goats. In addition, kisspeptin was immunolocalized in Leydig cells of the testis. The staining was mild in the interstitial cells of the prepubertal goats while strong staining was found in the postpubertal goats. In conclusion: Leydig cells are responsible for kisspeptin production in the goat testis and this expression is puberty dependent.

Keywords: Kisspeptin; Goat; Steroidogenic enzymes; Testis.

94- Long-Term P-Nitrophenol Exposure can Disturb Liver Metabolic Cytochrome P450 Genes Together with Aryl Hydrocarbon Receptor in Japanese Quail. Eman Ahmed, Kentaro Nagaoka, Mostafa Faye, Haney Samir and Gen Watanabe

Japanese Journal of Veterinary Research, 63(3): 115-127 (2015) IF: 0.889

P-Nitrophenol is a major metabolite of some organophosphorus compounds. It is considered to be one of nitrophenol derivatives of diesel exhaust particles that induce substantial hazards impacts on human and animal health. P-Nitrophenol (PNP) is a persistent organic pollutant. Consequently, bioaccumulation of PNP potentiates toxicity.

The objectives of the current study were to assess the potential hepatic toxicity and pathway associated with long-term exposure to PNP. Japanese quails were orally administered different doses of PNP for 75 days. Liver and plasma samples were collected at days 45 (45D), days 60 (60D) and days 75 (75D). Liver histological changes and plasma corticosterone levels were assessed. Basal mRNA level of cytochromes P450 (CYP 450) (CYP1A4, 1A5, 1B1), heme oxygenase (HO-1), and aryl hydrocarbon receptor 1 (AhR1), from the liver of exposed birds and primary hepatocytes cultured for 24 hr with PNP, were analyzed using quantitative real-time PCR.

The results revealed various histopathological changes in the liver, such as lymphocytes aggregation and hepatocytes degeneration. Significant increases in corticosterone levels were reported. After 60-days of in vivo exposure, the birds exhibited an overexpression in the liver CYP1A4, 1B1, AhR1 and HO-1. Furthermore, with continuous PNP administration, an overall downregulation of the tested genes was observed.

In vitro, although a significant overexpression of CYP1A4, 1B1, and HO-1 was observed, CYP1A5 was downregulated. In conclusion, PNP can interfere with the liver CYP 450 enzymes and modulate HO-1 expression in the in vitro and in vivo experiments. Hence, it could have serious deleterious effects on humans, livestock, and wild animals.

Keywords: Aryl hydrocarbon receptor; Cytochrome P450; Nitrophenol; Quail.

Dept. of Pathology

95- Antioxidant and Hypo-Ammonemic Activities of Alpha-lactalbumin and Vitamin C in Thioacetamide-induced Liver and Brain Damage in Rats

Dina Farouk Mansour, Somaia Ahmed Nada, Ezz-eldeen Said Eldenshary, Berween Mahmoud Elmahmoudy and Sherein Saeid AbdElgayed

Journal of Applied Pharmaceutical Science, 05: 72-81 (2015)

Hepatic encephalopathy (HE) is a syndrome resulting from acute or chronic liver failure. The main hypothesis suggests a state of hyperammonemia which is responsible for both direct and indirect alterations in cerebral metabolism with increased production of reactive oxygen and nitrogen species. The effect of milk-derived alpha-lactalbumin (a-LAC) and vitamin C (vit. C) was evaluated in thioacetamide (TAA)-induced HE model in the current study. Animals were treated with TAA (100 mg/kg, i.p.) or saline thrice weekly for six weeks to induce HE then treatment groups received orally a-LAC (100 or 150 mg/kg) and/or vit. C (500 mg/kg) daily for two weeks. Twenty-four hours after last treatment sera, liver and brain samples were collected to assess serum ammonia level, activities of alanine transaminase (ALT), and aspartate transaminase (AST), brain and liver oxidative stress parameters as well as histopathological investigations. TAA rats experienced increases in serum activities of ALT and AST as well as serum levels of ammonia. Furthermore, TAA induced hepatic and brain oxidative damage as indicated by increase in lipid peroxidation (LP), decrease in reduced glutathione (GSH) and decrease in superoxide dismutase (SOD) activity as well as increased nitric oxide (NO) levels. TAA caused distortion of hepatic and brain architecture as shown by histopathological examination. Treatment with a-LAC either alone or combined with vit. C resulted in improved liver functions by decline in serum AST and ALT activities and reduction in serum ammonia level. Alpha-LAC and vit. C reduced LP and NO levels while increased GSH concentration and SOD activity in hepatic and brain tissues. Finally, a-LAC-vit. C combination improved the hepatic and brain histological picture. Alpha-LAC-vit. C combination may be a promising pharmacological tool in providing a natural source of branched-chain amino acids and powerful antioxidants to combat hepatic encephalopathy-associated hyperammonemia and its consequential oxidative damage in liver and brain.

Keywords: Alpha-lactalbumin, Vitamin C; Thioacetamide; Liver; Brain; Ammonia; Oxidative stress; Hepatic encephalopathy; Rats.

Dept. of Pharmacology

96- Development and Validation of A Highperformance Liquid Chromatography-Tandem Mass Spectrometric Method for Simultaneous Determination of Bupropion, Quetiapine and escitalopram in Human plasma

Semin Parka, Chul-Soo Parkb, Sung Joong Leea, Boseok Chab, Young Ah Choa, Yi Songa, Eun Ae Yua, Gon-Sup Kimc, Jong Sung Jind, A. M. Abd El-Atye, H. A. El-Bannaf, Ahmet Hacimüftüoğlu, Jae-Han Shimf and Sung Chul Shina

Biomedical Chromatography, 29: 612-618 (2015) IF: 1.723

In the present study, an effective high performance liquid chromatography-tandem mass spectrometric (HPLC/MS/MS) method was developed and validated to simultaneously determine bupropion (BUP), quetiapine (QUE) and escitalopram (ESC) in human plasma using carbidopa as the internal standard. Chromatographic separation was achieved on a Waters Sun Fire C18 column using reversed-phase chromatography. The MS/MS experiment was performed in positive ion multiple reaction monitoring mode to produce product ions of m/z 240.3 \rightarrow 184.2 for BUP, 384.2 \rightarrow 253.1 for QUE, 325.3 \rightarrow 109.3 for ESC and 227.2 \rightarrow 181.2 for the internal standard. The method showed good linearity ($R^2 \geq 0.997$), precision (relative standard deviation $\leq 7.5\%$), satisfactory intra- and interday accuracy (88.4-113.0%) and acceptable extraction recovery (87.2-115.0%), matrix effect (84.5.5-108.7%) and stability (92.3-103.5%). The method was successfully applied to determine the concentrations of BUP, QUE and ESC in human plasma samples.

Keywords: LC/MS/MS; Bupropion; Escitalopram; Major Depressive disorder; Quetiapine.

Dept. of Veterinary Hygeine and Manament

97- Are mules or donkeys better adapted for Egyptian brick kiln work? (Until we can change the kilns)

Ahmed B.A. Ali, Mohamed Y. Matook, Manal A. Fouad and Camie R. Heleski

Journal of Veterinary Behavior, 10: 158-165 (2015) IF: 0.957

The working conditions of donkeys and mules in the Egyptian brick kilns are often very challenging. Common problems for these equids include the following: overloading, overworking, heat stress, harness lesions, poor body condition scores (BCSs), and poor treatment by handlers. However, mechanization of the Egyptian brick kilns is not yet realistic without entirely renovating all kilns for additional space requirements, which would be cost-prohibitive at this time. In the brick kilns in the Helwan area (approximately 185 kilns, supplying all bricks for the cities of Cairo and Giza), more than 2,000 donkeys and 400 mules move w200 million bricks per month, year round. From July 2012 to December 2013, the first author assessed 1,140 donkeys and 250 mules to answer the question of whether donkeys or mules are better suited for brick kiln work. Health parameters were assessed (e.g., pulse and respiratory rate, rectal temperature, mucous membranes, skin tent test, and capillary refill time); body lesions and BCSs were assessed on a 5-point scale from 1 (poor) to 5 (obese). Several behavior parameters (e.g., animal demeanor and human-animal interaction) were also assessed. The data were analyzed using SPSS 17.1.

There were (mean \pm standard error) 32.6% \pm 0.99% of kiln mules and 53.5% \pm 0.98% of kiln donkeys scoring a BCS ≥ 2 ($P < 0.001$). Heat stress and fever indicators were separated from each other for each measure and then respective scores were aggregated. Again, mules showed more favorable scores with the average aggregate heat stress score of mules being 26.8 \pm 0.15 and of donkeys being 48.3 \pm 0.25 ($P < 0.001$). Mules also showed fewer overwork-type body lesions (19.1 \pm 0.45) than donkeys (32.9 \pm 0.74; $P < 0.001$). When all health parameters were considered, it was apparent that mules are faring better than donkeys in the brick kiln environment. Should the kiln owners decide to replace donkeys with mules, one problem will need to

be addressed: Mules more frequently showed aggressive behaviors and avoidance behaviors to unfamiliar handlers (19.2% \pm 0.17% aggressive mules versus 3.0% \pm 0.02% aggressive donkeys; $P < 0.001$). Educational programs to assist with proper training and handling of mules should be implemented and then assessed for outcomes.

Keywords: Brick kilns; Working equid welfare; Mules welfare; Donkeys welfare; BCS; Body lesions; Behavior; Heat stress; Egyptian.

Dept. of Virology

98- Multiplex Pcr for Rapid Diagnosis and Differentiation of Pox and Pox-Like Diseases in Dromedary Camels

Abdelmalik I Khalafalla, Khalid A Al-Busada and Ibrahim M El-Sabagh

Virology Journal, 12: 102-111 (2015) IF: 2.181

Background: Pox and pox-like diseases of camels are a group of exanthematous skin conditions that have become increasingly important economically. Three distinct viruses may cause them: camelpox virus (CMLV), camel parapox virus (CPPV) and camelus dromedary papilloma virus (CdPV). These diseases are often difficult to differentiate based on clinical presentation in disease outbreaks. Molecular methods such as PCR targeting species-specific genes have been developed and used to identify these diseases, but not simultaneously in a single tube. Recently, multiplex PCR has gained reputation as a convenient diagnostic method with cost-and timesaving benefits.

Methods and Results: In the present communication, we describe the development, optimization and validation of a multiplex PCR assay able to detect simultaneously the genome of the three viruses in one single test allowing for rapid and efficient molecular diagnosis. The assay was developed based on the evaluation and combination of published and new primer sets and was validated with viral genomic DNA extracted from known virus strains ($n = 14$) and DNA extracted from homogenized clinical skin specimens ($n = 86$). The assay detects correctly the target pathogens by amplification of targeted genes, even in case of co-infection. The method showed high sensitivity, and the specificity was confirmed by PCR-product sequencing.

Conclusion: This assay provide rapid, sensitive and specific method for identifying three important viruses in specimens collected from dromedary camels with varying clinical presentations.

Keywords: Development; Multiplex pcr; Diagnosis; Pox and pox-like diseases; Camels.

99- Phylogenetic Analysis of Eight Sudanese Camel Contagious Ecthyma Viruses Based on B2L Gene Sequence

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Virology Journal, 12: 124-132 (2015) IF: 2.181

Background: Camel contagious ecthyma (CCE) is an important viral disease of camelids caused by a poxvirus of the genus parapoxvirus (PPV) of the family Poxviridae. The disease has been reported in west and east of the Sudan causing economical

losses. However, the PPVs that cause the disease in camels of the Sudan have not yet subjected to genetic characterization. At present, the PPV that cause CCE cannot be properly classified because only few isolates that have been genetically analyzed.

Methods and Results: PCR was used to amplify the B2L gene of the PPV directly from clinical specimens collected from dromedary camels affected with contagious ecthyma in the Sudan between 1993 and 2013. PCR products were sequenced and subjected to genetic analysis. The results provided evidence for close relationships and genetic variation of the camel PPV (CPPV) represented by the circulation of both Pseudocowpox virus (PCPV) and Orf virus (ORFV) strains among dromedary camels in the Sudan. Based on the B2L gene sequence the available CPPV isolates can be divided into two genetic clades or lineages; the Asian lineage represented by isolates from Saudi Arabia, Bahrain and India and the African lineage comprising isolates from the Sudan.

Conclusion: The camel parapoxvirus is genetically diverse involving predominantly viruses close to PCPV in addition to ORFVs, and can be divided into two genetically distant lineages. Based on sequences of the B2L gene it is not possible to suggest that the viruses that cause CCE form a monophylogenetic group or species within the PPV phylogeny.

Keywords: Camel contagious ecthyma; B2L gene; Phylogenetic analysis.

National Institute of Laser Enhanced Sciences

Dept. of Engineering Applications of Lasers (EAL)

100- Optical Packet Switching Architecture Using Wavelength Optical Crossbars

Tawfik Ismail Tawfik

Ieee/Osa Journal of Optical Communications and Networking, 7 (5): 461-469 (2015) IF: 2.183

All-optical packet switching (OPS) is one of the promising technologies for the next generation of optical networks. It realizes the packet switching in optical domain that eliminates optical-electrical and electrical-optical conversions. One of the main components in an OPS network is the optical interconnect that provides the basic functionality of directing packets from input ports to the desired output ports, while maintaining data in the optical domain. Advances in all-optical technologies enable the wavelength exchanging phenomenon that can be used to develop new optical interconnect architectures. These architectures simultaneously combine the switching and the conversion domains. Thus, the use of the exchanging technology reduces the complexity without impacting the overall switching performance. In this paper, a new bufferless OPS interconnect by adopting wavelength optical crossbars that can combine both switching and wavelength conversion capabilities is proposed. The proposed architecture can operate in either of two modes: blocking or nonblocking. Our analysis to the proposed architecture confirms that, for the same number of input and output ports, a reduction in conversion and switching complexity can be reached up to 50% and 99%, respectively, compared to traditional architectures.

Keywords: Bufferless ops; Optical packet switching; Wavelength division multiplexing; Wavelength exchanging; Wavelength optical crossbar.

Dept. of Laser Applications in Metrology, Photochemistry and Agriculture (LAMP)

101- Preparation and Characterization of Novel Polyaniline Nanosensor For Sensitive Detection of Formaldehyde

Wessam Omara, Rehab Amin, Hanan Elhaes, Medhat Ibrahim and Souad A. Elfeky

Recent Patents on Nanotechnology, 9 (3): 195-203 (2015) IF: 2.576

Nanomaterials are promising in the field of optical sensors due to their unique properties. Emeraldine base of polyaniline (Nano EB-PANI) was prepared, characterized and applied as an optical formaldehyde sensor. FTIR data confirm the formation of the EB-PANI. TEM and SEM revealed the size and shape of the nanoscale EB-PANI. XRD showed that the obtained nano EB-PANI has a partial crystalline nature. The sensing mechanism is based on the reaction of formaldehyde with Nano EB-PANI to form a complex as described by molecular modeling HF/3-21G** level of theory. Results showed that Nano EB-PANI detect low concentrations of formaldehyde ranging from 0.0003 to 0.9 ppm in a dose-dependent manner. The molecular modeling theory analysis showed that formaldehyde could interact with the amine of EB-PANI in, ring 3 or 4 or both together. The

binding energy and dipole moment of the interaction between formaldehyde and polyaniline nanosensor were calculated by HF/3-21G** level of theory. The interaction with ring 3-NH gives a less stable product with a high dipole moment 6.978 Debye comparing with 1.678 Debye for the product of formaldehyde interaction with the terminal ring 4-NH. The development of such novel EB-PANI nanosensor can be used as, reliable and sensitive formaldehyde sensor.

Keywords: EB-PANI; Formaldehyde; HF/3-21G**; molecular modeling; Polyaniline nanosensor

102- Elemental Analysis Study of Glazes and Ceramic Bodies from Mamluk and Ottoman Periods in Egypt by Laser- Induced Breakdown Spectroscopy (Libs)

Fatma Salah Madkour, Hisham Mahmoud Imam, Khalid Mohamed Elsayed and Galila Abdelatif Meheina

Periodico Di Mineralogia, 84 (1): 1-16 (2015) IF: 0.464

This paper reports on the elemental analysis of archaeological glazed ceramic artifacts, found in Al-Fustat excavation located in Old Cairo. The objects dated back to Mamluk period (1250-1517 AD) and through Ottoman period (1517-1805 AD). The semi-quantitative analysis on the multilayered ceramic findings regard colored glazes decorations present on the surface and ceramic bodies were carried out by Laser Induced Breakdown Spectroscopy (LIBS). The qualitative elemental analysis results obtained by LIBS were confirmed with other analytical techniques such as Scanning Electron Microscopy coupled with energy dispersive X-ray spectroscopy (SEM/EDS) and X-ray diffraction (XRD). The obtained results gave indications about the manufacturing process and the raw materials of the ancient ceramics belong to the Mamluk and Ottoman periods in Egypt, that help in the conservation process. The analysis demonstrates the potential of the LIBS technique to perform routine, rapid, on-site analysis of archaeological ceramic, which leads to the quick characterization or screening of different types of ancient ceramics objects.

Keywords: LIBS; Ceramics artifacts; Elemental analysis; Spectra; Plasma; Emission.

103- Synthesis, in Vitro Antimicrobial and Anticancer Evaluation of Some New Pyridazines and Polyfunctionally Substituted Heterocyclic Compounds

Farag Mohamed Abdelmaksoud Altalbawy

Asian Journal of Chemistry, 27(12): 4361-4368 (2015)

This study aimed for the synthesis of new heterocyclic compounds incorporating sulfamoyl moiety suitable for use as antimicrobial agents via versatile and readily accessible N-[4-(aminosulfonyl)phenyl]-3-oxobutanamide (1). Butanamide coupled with arenediazonium salts to afford hydrazones. The latter reacts with dimethylformamide dimethyl acetal (DMF-DMA) to afford the substituted 1,4-dihydropyridazine. Several new thiophene, pyridine, nicotinamide and pyrazole derivatives have been synthesized by the reactions of butanamide with malononitrile and elemental sulfur, 1,3-diphenylpropenone, arylidenecyanothioacetamide, nitrogen nucleophiles,

respectively. Refluxing of butanamide with a mixture of p-methoxybenzaldehyde and thiourea afforded 4-(4-methoxyphenyl)-6-methylN-(4-sulfamoylphenyl)-2-thioxo-1,2-dihydropyrimidine-5-carboxamide which heated with chloroacetyl chloride give N-[4-(aminosulfonyl)phenyl]-7-methyl-5-(4-methoxyphenyl)-3-oxo-2,3-dihydro-5H-[1,3]thiazolo[3,2-a]pyrimidine-6-carboxamide. Treatment of butanamide with phenyl isothiocyanate afforded the intermediate salt which reacted in situ with 2-bromo-1-phenylethanone to afford N-[4-(aminosulfonyl)phenyl]-2-(3,4-diphenyl-3H-thiazol-2-ylidene)-3-oxobutanamide. Some of the selected products were evaluated for both their in vitro antibacterial and antifungal activities and showed promising results. In addition, the anticancer activity of some selected products against human liver (HEPG2) cell line was determined and the results revealed high activities of compounds 5a, 6 and 14.

Keywords: Antimicrobial activity; Anticancer activity; Butanamide; Pyrazole; Pyridine; Thiophene; Thiazolopyrimidine.

Dept. of Laser Sciences and Interactions (LSI)

104- The Photoluminescence Properties of Undoped & Eu-Doped ZnO Thin Films Grown by RF Sputtering on Sapphire And Silicon Substrates

Samah M. Ahmed, Paul Szymanski, Mostafa A. El-Sayed, Yehia Badr and Lotfia M. El-Nadi

Applied Surface Science, 359: 356-363 (2015) IF: 2.711

We have reported on the effects of the substrate type on the structural and photoluminescence properties of undoped and Eu-doped ZnO thin films, grown by RF sputtering on c-plane sapphire and silicon substrates. As revealed by the XRD, all films are highly textured and have a preferred orientation along the c-axis perpendicular to the substrate. XPS analysis confirms the incorporation of Eu ions into the ZnO matrix. Also, all thin films are O-rich, with increasing oxygen content after annealing in oxygen atmosphere. The annealed thin films on sapphire substrates are found to have more excess oxygen than those on silicon substrates. The AFM images showed that the substrate type and Eu-doping affect the surface morphology of the thin films. The photoluminescence measurements showed that the intensity ratio of the defect-related visible emission to the UV excitonic emission of ZnO, as well as the red emission intensity of Eu³⁺ ions were affected by the substrate type. Our results point out that, for luminescent devices based on the UV emission of ZnO thin films, silicon is a promising, cost-effective substrate. On the other hand, for efficient red emission of Eu³⁺ ions in Eu-doped ZnO thin films, c-plane sapphire substrate is more favorable.

Keywords: Zinc oxide; Europium; Thin films; Energy transfer; Photoluminescence.

105- Spectroscopic Laser Parameters of Ag/CdTe Nanostructure

A.E. Giba, A. S. Gadallah, M.B. Mohamed and I.M. Azzouz

Journal of Luminescence, 167: 408-412 (2015) IF: 2.693

We report spectroscopic laser parameters analysis for CdTe quantum dots (QDs) in the presence of Ag nanoparticles (NPs).

Absorption and emission cross-sections of about 2 nm-particle size of aqueous CdTe QDs were estimated, when different contents of about 40 nm Ag nanoparticles were added. The fluorescence, radiative lifetimes and the energy transfer between Ag NPs and CdTe QDs have been investigated. Lasing parameters that evaluate the possibility of getting laser action for these nanomaterials were calculated. The energy transfer mechanism between Ag NPs and CdTe QDs was occurred by Forster resonance energy transfer (FRET) as the average distance between them is about 50 nm.

Keywords: Lasing parameters; CdTe emission cross sections; Ag/CdTe Energy transfer.

106- Carrier Transport Mechanisms and Photodetector Characteristics of Ag/TiOPc/p-Si/Al Hybrid Heterojunction

H.A. Afify, M.M. El-Nahass, A.S. Gadallah and M. Atta Khedr

Materials Science in Semiconductor Processing, 39: 324-331 (2015) IF: 1.916

Hybrid heterojunction device was fabricated by employing a p-type Si and a thin film of titanyl phthalocyanine (TiOPc). The dark current density-voltage characteristics of the fabricated Ag/TiOPc/p-Si/Al heterojunction were investigated at different temperatures ranging from 294 to 375 K to determine the carrier transport mechanisms. At low forward bias, the current was found to follow the thermionic emission mechanism, while at high forward bias, the space charge limited current controlled by exponential trap distribution was found to be the dominated mechanism. The ideality factor and the barrier height were determined. At reverse bias, the conductivity was interpreted in terms of the Schottky effect. The interface state density was determined from the current-voltage characteristics. Also, the photodetector characteristics were studied for the fabricated device under illumination of near-infrared 805 nm laser. The responsivity, external quantum efficiency, and detectivity were determined. The photodetector was found to have a rise time of about 23 μ s.

Keywords: Hybrid heterojunction; Transport mechanisms; Barrier height; Photodetector; Organic semiconductors; Titanyl phthalocyanine.

107- Development Of Double-Pulse Lasers Ablation System For Generating Gold Ion Source Under Applying An Electric Field

Ahmed Asaad Ibrahim Khalil

Optics & Laser Technology, 75: 105-114 (2015) IF: 1.897

Double-pulse lasers ablation (DPLA) technique was developed to generate gold (Au) ion source and produce high current under applying an electric potential in an argon ambient gas environment. Two Q-switched Nd:YAG lasers operating at 1064 and 266 nm wavelengths are combined in an unconventional orthogonal (crossed-beam) double-pulse configuration with 45° angle to focus on a gold target along with a spectrometer for spectral analysis of gold plasma. The properties of gold plasma produced under double-pulse lasers excitation were studied. The velocity distribution function (VDF) of the emitted plasma was studied using a dedicated Faraday-cup ion probe (FCIP) under argon gas discharge. The experimental parameters were

optimized to attain the best signal to noise (S/N) ratio. The results depicted that the VDF and current signals depend on the discharge applied voltage, laser intensity, laser wavelength and ambient argon gas pressure. A seven-fold increases in the current signal by increasing the discharge applied voltage and ion velocity under applying double-pulse lasers field. The plasma parameters (electron temperature and density) were also studied and their dependence on the delay (times between the excitation laser pulse and the opening of camera shutter) was investigated as well. This study could provide significant reference data for the optimization and design of DPLA systems engaged in laser induced plasma deposition thin films and facing components diagnostics.

Keywords: Laser; Double-pulse; Gold target; Ambient argon pressure.

108- Chemical Etching Method Assisted Double-pulse LIBS for the Analysis of Silicon Crystals

Ahmed Asaad Ibrahim Khalil

Applied Physics A-Materials Science & Processing, 119 (3): 1087-1099 (2015) IF: 1.704

Two Nd:YAG lasers working in pulsed modes are combined in the same direction (collinear arrangement) to focus on silicon (Si) crystals in reduced oxygen atmosphere (0.1 mbar) for double-pulse laser-induced breakdown spectroscopy (DP-LIBS) system. Silicon crystals of (100) and (111) orientations were investigated, and Si samples were measured either without prior treatment ("untreated") or after fabrication of nano-pores ("treated"). Nano-pores are produced by metal coating and by chemical etching. DP-LIBS spectra were compared for different Si samples (untreated, treated, (100) and (111) orientations), for double-pulse (DP) (with 266 nm pulse followed by 1064 nm pulse) excitation and for different delay times (times between the excitation laser pulse and the detection ICCD gate); treatment by chemical etching has been studied as well. The intensity of the atomic line Si I at 288.16 nm was enhanced by a factor of about three by using the DP-LIBS signals as compared to the single-pulse (SP) signal which could increase the sensitivity of the LIBS technique. This study proved that an optimized value of the etching time of Si during etching by chemical processes and short delay times are required. Plasma parameters [the electron temperature (T_e) and the electron number density (N_e)] were calculated from measured SP- and DP-LIBS spectra. The most important result of this study is the much higher DP-LIBS intensity observed on Si (100) as compared to Si (111) for measurements under the same experimental conditions. This study could provide important reference data for the design and optimization of DP-LIBS systems involved in plasma-facing components diagnostics.

Keywords: Chemical Etching Method Assisted Double-Pulse Libs.

109- Detection of Carcinogenic Metals in Kidney Stones Using Ultraviolet Laser-Induced Breakdown Spectroscopy

AA Khalil, MA Gondal, M Shemis and IS Khan

Applied Optics, 54 (8): 2123-2131 (2015) IF: 1.598

The UV single-pulsed (SP) laser-induced breakdown spectroscopy (LIBS) system was developed to detect the carcinogenic metals in human kidney stones extracted through the surgical operation. A neodymium yttrium aluminium garnet laser operating at 266 nm wavelength and 20 Hz repetition rate along with a spectrometer interfaced with an intensified CCD (ICCD) was applied for spectral analysis of kidney stones. The ICCD camera shutter was synchronized with the laser-trigger pulse and the effect of laser energy and delay time on LIBS signal intensity was investigated. The experimental parameters were optimized to obtain the LIBS plasma in local thermodynamic equilibrium. Laser energy was varied from 25 to 50 mJ in order to enhance the LIBS signal intensity and attain the best signal to noise ratio. The parametric dependence studies were important to improve the limit of detection of trace amounts of toxic elements present inside stones. The carcinogenic metals detected in kidney stones were chromium, cadmium, lead, zinc, phosphate, and vanadium. The results achieved from LIBS system were also compared with the inductively coupled plasma-mass spectrometry analysis and the concentration detected with both techniques was in very good agreement. The plasma parameters (electron temperature and density) for SP-LIBS system were also studied and their dependence on incident laser energy and delay time was investigated as well.

Keywords: Laser induced breakdown.

Dept. of Medical Applications of Lasers (MAL)

110- Evaluation of the Effect of Low Level Diode Laser Therapy Applied During the Bone Consolidation Period Following Mandibular Distraction Osteogenesis in the Human

Latifa Mohamed Abd El Gawad Soliman

Int. J. Oral Maxillofac. Surg., 44: 989-997 (2015) IF: 1.563

The aim of this study was to evaluate the effect of low-level laser therapy (LLLT) on new bone formation obtained by distraction osteogenesis in the early consolidation period. Ten selected patients with bilateral mandibular retrusion seen at the Nasser Institute Hospital, Egypt between June 2009 and June 2012 underwent this clinical trial; seven were female and three were male, and their mean age was 31 ± 5.1 years. The left mandible of each patient was assigned to group A ($n=10$) and the right mandible to group B ($n=10$); mandibular distraction osteogenesis was performed on both sides and then LLLT was used in group B only. The amounts of bone acquired were compared according to their radiographic density on digital panoramic radiographs after 6, 12, 24, and 54 days of consolidation. Statistically significant differences in bone density were found between the two groups. Group B showed bone consolidation and growth differences on day 6 ($P=0.402$), day 12 ($P=0.006$), day 24 ($P=0.021$), and day 54 ($P=0.028$). The use of LLLT on distracted bone was found to increase the quality and quantity of bone and to shorten the consolidation period, allowing early removal of the distractor and resulting in decreased morbidity and relapse.

Keywords: Consolidation period; Distraction osteogenesis; Low-level laser therapy.



Cairo University

International Publications Awards

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(2)

Engineering

Sciences Sector

2-1 Faculty of Engineering

2-2 Faculty of Computers and Information

3-3 Institute of Statistical Studies and Research

Total No. of Publication for Engineering Sciences Sector

Faculty	2006	2007	2008	2009	2010
Engineering	56	79	109	140	131
Computers and Information	2	3	4	11	6
Regional and Urban Planning					
Statistical Studies and Research Institute	8	6	11	7	4
Total	66	88	124	158	141

Faculty	2011	2012	2013	2014	2015	Total
Engineering	198	228	240	167	196	
Computers and Information	32	35	0	19	24	
Regional and Urban Planning		1	0	0	0	
Statistical Studies and Research Institute	17	43	43	5	13	
Total	247	307	283	191	233	

Faculty of Engineering

Dept. of Architectural Engineering

111. Participatory Landscape Design of New Cities in Egypt: Correlation Model of Related Variables, Case of 6Th of October City

Asmaa Abdel Aty Mohamed and Ahmed Amin

Journal of Urban Planning and Development, 141 (4): 4014042-4014042 (2015) IF: 0.809

Participatory landscape has become a strategic concern for achieving sustainable environments and in enhancing the social awareness within the external context of residential neighborhoods. However, few studies have explored the right methodologies for implementing such approaches, and none of them have presented a detailed model that can guide decision makers during its application, especially in the Egyptian communities with their different income and social levels. The paper thus presents a statistical approach for the measurement of the residents' willingness to participate in such processes in comparison with the degree of involvement proposed by practitioners in three neighborhoods of different income and social levels in 6th of October City, as a remarkable example of one of the new Egyptian cities. It deduces statistical correlations between each of the variables representing the degree of residents' participation once according to their willing and another according to practitioners' recommendation for their degree of involvement as compared to the other stakeholders, with the functional, environmental, aesthetical, economic, maintainability, and sociability quality aspects of the landscape that would be achieved upon participation processes. Results highlighted the fact that levels of participation and significance of the roles of other stakeholders vary from one neighborhood to another and also vary according to their impact on the different functional, environmental, aesthetical, economic, maintainability, and sociability landscape qualities. Accordingly, it is necessary to conduct such action-oriented research before applying any participatory landscape approaches as there is no single unique model for successful participatory landscape approaches, which should be rather viewed as a dynamic transformation sustained by the local identity of the community, to overcome the contradiction between the recognition of the diversity of cultural practices and the problematic selection criteria of "outstanding universal value."

Keywords: Urban development; Public participation; Community development; Urban landscape.

112. Participatory Landscape Design of New Cities in Egypt: Climate Change Adaptation: an Overview on Challenges and Risks in Cities, Regions Affected, Costs and Benefits of Adaptation, and Finance Mechanisms

Manal El-Batran and Mohsen Aboulnaga

Springer, 725-764 (2015)

Adaptation of climate change (CC) has been defined by many of the world's leading institutions such as IPCC and UNFCCC in various contexts. Many studies, research, and reports on CC mitigation were reported, but less was done on adaptation. Adaptation is strategically needed to lower the impact of CC that

is manifesting coupled with serious challenges and risks for cities such as high temperatures, water availability, floods and droughts, and sea-level rise damage to coastal areas. Adaptation is vital to offset CC impacts on environment challenges such as soils, biodiversity, inland water, and marine environment. By adopting effective measures and early actions for CCA, money and lives can be saved. The EU Climate Action highlighted six areas where adaptation measures should be applied and financed. Strategies for CCA are vital at all levels of government administration whether local, regional, or national to counterbalance CC. Areas with high vulnerability to CC impact and need adaptation actions, policies, and measures; are mainly in Europe, the Mediterranean, Asia-Pacific, North America, and Africa; and have been highlighted.

Gaps in the assessment of the full costs of CC compared to that of CC mitigation were discussed. Many researches that have been conducted on CC policy are mainly for mitigation, but less was focusing on the assessment of cost. The EU which allocated 20 % of funding to climate, costs, and benefits of adaptation is recently focusing on the cost inclusion of adaptation in urban policies and projects and the cost of actual adaptation measures. Costs and benefits of adaptation options were reviewed by UNFCCC, mainly methodological issues for estimating the costs and benefits of adaptation options followed by the economics of adaptation in light of the review. Information and guidance for the costing of adaptation options are outlined, including many major methods and techniques for adaptation option appraisal and decision analysis in the climate change adaptation that have been recently reported such as cost-effectiveness analysis (CEA), the cost-benefit analysis (CBA), and the multi-criteria analysis (MCA). It also presents a comparison between these costing and benefits and techniques. This chapter reviews and discusses five main folds: (1) why is climate change adaptation necessary; (2) the importance of climate change adaptation (CCA); (3) what are the methods of CCA; (4) the widening gap between CC impacts and required adaptation measures, including the most affected regions and case studies of CCA in Africa, Asia, Europe, and Latin America; and (5) what is the cost of CCA including how costs of CCA are assessed and financed. It also attempts to review the CCA funding mechanisms with focus on cities and urban areas. It is clear that many actions, measures, and funds have been developed, but the gap is still widening in developing poor countries, and the robust machinery to significantly execute the current funding in productive channels is highly required if facilitating adaptation to CC impacts and minimizes risks.

Keywords: Climate change; Adaptation methods; Adaptation actions and measures; Risk in cities; Cost and benefits; Adaptation and finance mechanism; Vulnerable countries.

Dept. of Chemical Engineering

113. Modeling of Nitrogen Separation from Natural Gas Through Nanoporous Carbon Membranes

Abdulrahman A. Al-Rabiah, Abdelhamid M. Ajbar, Moustafa A. Soliman, Fahad A. Almalki and Omar Y. Abdelaziz

Journal of Natural Gas Science and Engineering, 26: 1278-1284 (2015) IF: 2.157

This work presents a theoretical investigation of the use of nanoporous carbon membranes for the separation of nitrogen from natural gas. A mathematical model to predict the

performance of the membrane is developed. The model is a combination of the well known dusty gas model, which describes the transfer of multi-components mixture in porous media, together with a surface diffusion model. The model is first validated using the literature results for the separation of hydrogen from hydrocarbons mixture. The model is then applied to the nitrogen-hydrocarbons system. The membrane performance is evaluated in terms of nitrogen recovery, methane loss, nitrogen purity, as well as hydrocarbons compositions in both permeate and retentate sides. The model calculation methods are applied for both co-current and counter-current flow configurations. A parametric study is also carried out to investigate the effects of membrane parameters such as feed and permeate pressures and porosity on the membrane performance. The developed model is general and can be applied to various nanoporous membrane flow patterns.

Keywords: Nanoporous carbon membrane; Dusty gas model; Mathematical modeling; Nitrogen removal; Natural gas; Selective surface flow.

Dept. of Electric Power and Machines

114. Interaction of H₂O and H₂S with Cu(111) and the Impact of the Electric Field: the Rotating & Translating Adsorbate and The Rippled Surface

Chang JH, Huzayyin A, Lian K and Dawson F.

Physical Chemistry Chemical Physics, 17: 588-598 (2015)
IF: 4.449

The interactions of H₂O and H₂S monomers with Cu(111) in the absence and presence of an external electric field are studied using density functional theory. It is found that the adsorption is accompanied by a rippled pattern of the surface Cu atoms and electron accumulation on the surface Cu atoms surrounding the adsorption site. The response of the H₂O/Cu(111) and H₂S/Cu(111) interfaces to the external electric field is computed up to the field magnitude of 1010 V m⁻¹. The results show that H₂O rotates and translates much more with an electric field than H₂S does. The extent of the surface deformation changes considerably with the applied electric field, which influences the translation pattern of the adsorbates. On the other hand, the rotation of the adsorbates is correlated to the dipole moment of the molecules and their adsorption energies.

Keywords: Quantum mechanics; DFT; Electrified interface; Adsorbates.

115. Quantum Capacitance of Graphene in Contact with Metal

Jin Hyun Chang, Ahmed Huzayyin, Keryn Lian and Francis Dawson

Applied Physics Letters, 107: 193902-0 (2015) IF: 3.124

We report a versatile computation method to quantitatively determine the quantum capacitance of graphene when it is in contact with metal. Our results bridge the longstanding gap between the theoretically predicted and experimentally measured quantum capacitance of graphene. Contrary to popular assumptions, the presence of charged impurities or structural distortions of graphene are not the only sources of the asymmetric capacitance with respect to the polarity of the bias

potential and the higher-than-expected capacitance at the Dirac point. They also originate from the field-induced electronic interactions between graphene and metal. We also provide an improved model representation of a metal-graphene junction.

Keywords: Quantum mechanics; DFT; Graphene; Quantum capacitance; Supercapacitors.

116. Analysis of Interfacial Water Multilayers on Au(1 1 1) Surface

Ahmed Huzayyin and Francis Dawson

Journal of Electroanalytical Chemistry, 748: 8-15 (2015)
IF: 2.822

Multiple layers of water on Au (1 1 1) surface are studied using first principle computations within the framework of Density Functional Theory. Gold surface coverage of one (1L), two (2L) and three (3L) water layers were analyzed. The ratio of Au surface atoms to water molecules in 1L, 2L, and 3L corresponds to 1:1, 1:2, and 1:3, respectively. The first two water layers are unique in energy and structure as compared to ice like layers and are only stable at the interface. Thus the interfacial region was defined by the region created by the first two water layers. The third water layer adopts a structure that is close to that of an ice water layer in geometry and energy. The dielectric response of bulk water is recovered at the 3rd water layer signifying the transition from interfacial water to bulk water which occurs at a surface coverage that is greater than (2L). The first water layer is defined as the water bilayer which is adjacent to the Au (1 1 1) hexagonal surface. This bilayer structure changes significantly with the addition of the second water layer whereas additional layers added thereafter generate insignificant changes. The bilayer structure and hence the dielectric response of the layer is a function of the presence of surrounding water layers. The rapid decrease in the work function of gold with an increase in the number of water layers becomes less pronounced as more layers are added and asymptotically attains a constant value once the bulk properties of water are reproduced. The calculated decrease of work function for a surface coverage greater than 2L matches the experimental results.

Keywords: Water bilayer; Electrochemical interface; Water-metal interface; Density functional theory.

117. Saturated Robust Power System Stabilizers

Hisham M. Soliman and Hassan A. Yousef

Electrical Power and Energy Systems, 73: 608-614 (2015)

In this paper, a new saturated control design for uncertain power systems is proposed. The developed saturated control scheme is based on linear matrix inequality (LMI) optimization to achieve prescribed dynamic performance measures, e.g., settling time and damping ratio. In this design, the closed-loop poles are forced to lie within a desired region. The proposed design provides robustness against system uncertainties. The simulation results of both a single machine infinite bus and a multi-machine power systems are given to validate the effectiveness of the proposed controller.

Keywords: Power system stabilizer; Saturated control; Robust control; Regional pole placement; Linear matrix inequality (Lmi).

118. Robust Flatness-based Tracking Control for Brushless Direct Current Motor Drives

Hassan A Yousef and Hisham M Soliman

Journal of Vibration and Control, 21: 3254-3265 (2015)

The trajectory tracking problem for nonlinear brushless direct current drive is solved by combined robust and flatness state feedback control. The drive's nonlinear model is shown to have the flatness property. The proposed controller consists of two parts, linear and nonlinear. Linear matrix inequalities (LMI) optimization is used to design the linear part which achieves robust stability against system uncertainties, desired swiftness, and guaranteed cost performance. System uncertainty due to changes in the drive's parameters is represented with a norm-bounded structure. The nonlinear control part solves the motion planning problem through flatness which avoids integrating the differential equations of the dynamics. The main advantages of this technique are that the LMI algorithm includes an optimal part to preclude high control efforts, and the control burden is heavily placed on the linear part to achieve flatness properties. In some systems, in which flatness cannot be achieved, adding robust linear control can overcome or alleviate this problem.

Keywords: Dc machines; Electric drives; Flatness control; Guaranteed cost control; Linear matrix inequalities (Lmi); Nonlinear systems; State feedback; Tracking control.

Dept. of Electronics and Communication Engineering**119. A Novel Nondestructive Read/Write Circuit for Memristor-Based Memory Arrays**

Mohamed Elshamy, Hassan Mostafa and Yehya H. Ghallab

IEEE Transactions on Very Large Scale Integration (VLSI) Systems 23 (11) 2648-2656 (2015) IF: 1.356

Emerging nonvolatile universal memory technology is vital for providing the huge storage capabilities, which is needed for nanocomputing facilities. Memristor, which is recently discovered and known as the missing fourth circuit element, is a potential candidate for the next-generation memory. Memristor has received extra attention in the last few years. To support this effort, this paper presents a novel read/write circuit that facilitates the reading and writing operation of the Memristor device as a memory element. The advantages of the proposed read/write circuit are threefold. First, the proposed circuit has a nondestructive successive reading cycle capability. Second, it occupies less die area. Finally, the proposed read/write circuit offers a significant improvement in power consumption and delay time compared with other read/write circuits.

Keywords: Memristors; Writing; Computational modeling; Resistance; Integrated circuit modeling; Power demand.

120. Micro-scale Variation-tolerant Exponential Tracking Energy Harvesting System for Wireless Sensor Networks

Ayman Eltaliawy, Hassan Mostafa and Yehea Ismail

Microelectronics Journal 46 (3) 221-230 (2015) IF: 0.836

Self-powered stand-alone electronic systems, targeting low power applications, are the future of power management. In wireless sensor networks (WSNs) and implantable devices,

battery replacement is expensive and power management of these systems is essential. Energy harvesting is considered one of the main power management methods that scavenge energy from the ambient resources that are available and abundant. They take the advantage of minimizing the maintenance costs as well as saving area (Penella-Lopez and Gasulla-Fornier, 2011 [1]). This paper presents a new tracking technique for maximum power harvesting of solar energy using a micro-scale photovoltaic cell. The new design is based on the analytical derivation of the system equations. The power converter used is a tree topology charge pump, the control circuit is a low frequency voltage controlled oscillator (VCO), and the energy storage element is an output super-capacitor. The system is designed using TSMC 65 nm technology node. Typical power efficiency of the proposed circuit reaches 63% where the proposed design is targeting indoors and outdoors light intensities at zero load condition. The maximum power consumption of the harvester reaches $170\mu\text{W}$.

Keywords: Energy harvesting; Switched-capacitor charge pumps; Wireless sensor networks; Maximum power point tracking (MPPT).

121. A design-oriented Timing Jitter/skew Model in Voltage-to-time Converter (VTC) Circuits

Hassan Mostafa and Yehea I. Ismail

Analog Integrated Circuits and Signal Processing, 82, (1): 309-321 (2015) IF: 0.417

Time-based ADC is an essential block in designing software radio receivers because it exhibits higher speed and lower power compared to the conventional ADC, especially, at scaled CMOS technologies. In time-based ADCs, the input voltage is first converted to a pulse delay time by using a voltage-to-time converter (VTC) circuit, and then the pulse delay time is converted to a digital word by using a time-to-digital converter circuit. In this paper, an analytical model for the timing jitter and skew due to noise and process variations, respectively, is proposed for the VTC circuit. The derived model is verified and compared to Monte Carlo simulations and Eldo transient noise simulations by using industrial 65-nm CMOS technology. This paper provides new design insights such as the impact of timing jitter/skew on the ADC resolution and the maximum input voltage frequency. Also, this paper shows how the timing jitter/skew can be reduced by using circuit design knobs such as the supply voltage and the load capacitance. Therefore, the circuit designers can utilize these results to design the time-based ADC circuits under power and performance constraints in early design cycles. These results are particularly important for timing jitter/skew tolerant designs in sub-micron technologies, especially, for low power operations.

Keywords: Nanometer CMOS technology; Process variations; Timing jitter/skew; Voltage-to-time converter.

Dept. of Engineering Mathematics and Physics**122. Nonresonant and Resonant Cloaking of an Electrically Large Dielectric Spherical Object by A Multilayer Isotropic Metamaterial Cover**

Ahmed Abouelsaood, Islam Afifi and Islam Eshrah

Applied Optics, 54 / 21: 6598-6607 (2015) IF: 1.598

Mie theory and genetic algorithms are used to determine the parameters and performance of cloaks made of homogeneous isotropic metamaterials that would hide a spherical dielectric object of size comparable to the incident radiation wavelength. A single-layer (SL) cover with negative permittivity and permeability can produce a much greater reduction in the extinction efficiency than one with the permittivity and permeability of positive or opposite signs. Minimization of the extinction efficiency in the former case leads to both nonresonant and resonant solutions. Adding a second layer to the cover can lead to a significant enhancement of the bandwidth, but only to a modest reduction in the extinction efficiency at the design wavelength. In the SL case, Debye's scattering series is used to show that the nonresonant and resonant minima of the extinction efficiency correspond to scattering phase shifts approximately equal to zero and $-\pi$, respectively, and to understand the simple approximate expressions for the cloak parameters of the nonresonant solutions. The series also explains the value of the outer radius of a multilayer cloak, provides a link to a previously studied isotropic approximation to a transformation optics cloak, and indicates that a cloak consisting of an odd number of alternate double-negative and double-positive layers will probably give the best possible performance.

Keywords: Invisibility cloaks; Mie theory; Metamaterials.

123. Oscillation Criteria for Higher Order Nonlinear Functional Dynamic Equations with Mixed Nonlinearities

Said Grace

Communications In Applied Analysis, 19: 369-402 (2015)

This paper is concerned with the oscillatory properties of even order advanced type dynamic equation with mixed nonlinearities of the form

$$[r(t)\Phi_a(x_{\Delta n-1}(t))]\Delta + p(t)\Phi_a(x(\delta(t))) + k \sum_{i=1}^n p_i(t)\Phi_{a_i}(x(\delta(t))) = 0$$

on an arbitrary time scale \mathbb{T} , where $\Phi_*(u) = |u|^{*-1}u$. We present some new oscillation criteria for the equation by introducing parameter functions, establishing a new lemma, using a Hardy-Littlewood-Pólya inequality and an arithmetic-geometric mean inequality and developing a generalized Riccati technique. Our results extend and supplement some known results in the literature. Several examples are given to illustrate our main results.

Keywords: Oscillation; Even order; Advanced type; Dynamic equation; Mixed nonlinearities.

124. Oscillation Criteria for Third Order Nonlinear Delay Differential Equations with Damping

Said Grace

Opuscula Mathematica, 35: 485-497 (2015)

This note is concerned with the oscillation of third order nonlinear delay differential equations of the form

$$(r_2(t)(r_1(t)y'(t))')' + p(t)y'(t) + q(t)f(y(g(t))) = 0.$$

In the papers [A. Tiryaki, M. F. Aktas, Oscillation criteria of a certain class of third order nonlinear delay differential equations with damping, J. Math. Anal. Appl. 325 (2007), 54-68] and [M.

F. Aktas, A. Tiryaki, A. Zafer, Oscillation criteria for third order nonlinear functional differential equations, Applied Math. Letters 23 (2010), 756-762], the authors established some sufficient conditions which insure that any solution of equation $(*)$ oscillates or converges to zero, provided that the second order equation $(r_2(t)z'(t))' + (p(t)/r_1(t))z(t) = 0$ is nonoscillatory. Here, we shall improve and unify the results given in the above mentioned papers and present some new sufficient conditions which insure that any solution of equation $(*)$ oscillates if equation $(**)$ is nonoscillatory. We also establish results for the oscillation of equation $(*)$ when equation $(**)$ is oscillatory.

Keywords: Oscillation; Third order; Delay differential equation.

125. Oscillatory Theorems for Certain Second Order Damped Dynamic Inclusions with Distributed Deviating Arguments

Said Grace, Elvan Akin and Rawi Agarwal

Communications in Applied Analysis, 19: 3-14 (2015)

We shall establish some new criteria for the oscillation of second order nonlinear damped dynamic inclusions with distributed deviating arguments on time scales.

Keywords: Oscillation; Dynamic inclusions; Distributed arguments.

Dept. of Mechanical Design and Production

126. Characteristics of Starch-Based Biodegradable Composites Reinforced with Date Palm and Flax Fibers

Hamdy Ibrahim, Mahmoud Faragb, Hassan Megahed and Sherif Mehanny

Carbohydrate Polymers, 101: 11-19 (2015) IF: 4.219

The aim of this work is to study the behavior of completely biodegradable starch-based composites containing date palm fibers in the range from 20 to 80 wt%. Hybrid composites containing date palm and flax fibers, 25 wt% each, were also examined. The composites were preheated and then hot pressed at 5 MPa and 160 °C for 30 min. SEM investigation showed strong adhesion between fibers and matrix.

Density measurements showed very small void fraction (less than 0.142%) for composites containing up to 50 wt% fiber content. Increasing fiber weight fraction up to 50 wt% increased the composite static tensile and flexural mechanical properties (stiffness and strength).

Composite thermal stability, water uptake and biodegradation improved with increasing fiber content. The present work shows that starch-based composites with 50 wt% fibers content have the optimum mechanical properties. The hybrid composite of flax and date palm fibers, 25 wt% each, has good properties and provides a competitive eco-friendly candidate for various applications.

Keywords: Biodegradable composites; Date palm fibers; Flax fibers; Starch matrix; Hybrid composites.

127. Humidity and Temperature Effects on Torque Transducers, Bridge Calibration Unit and Amplifiers

K.M. Khaled, D. Röske, A.E. Abuelezz and M.G. Elsherbiny

Measurement, 74: 31-42 (2015) IF: 1.484

This paper presents a study of the effect of relative humidity and temperature on the DMP40 measuring amplifier and the BN100A bridge calibration unit. Furthermore, the effect of relative humidity on the zero signal of torque transducers is studied here. The results show that the DMP40 has a linear trend line with increasing relative humidity/ temperature and also with an increase in the input voltage ratio. The developed equation is presented to predict the effect of relative humidity/temperature change on the DMP40 at any input voltage ratio by testing the DMP40 at both upper and lower relative humidity/temperatures for three input voltage ratios only. The stability of BN100A under relative humidity/temperature change is verified. The results show the symmetry of humidification and dehumidification effects on the zero signal of the torque transducer and there is good agreement between the developed characteristic equation using two exponential terms and the experimental results.

Keywords: Torque; Relative humidity; Temperature Bridge calibration unit; Amplifier.

Dept. of Mechanical Power Engineering**128. Prediction of energetic and exergetic performance of double-effect absorption system**

Ahmed Hame, Sayed A. Kaseb and Abdalla S. Hanafi

Int. J. of Hydrogen Energy, 40 (44): 15320-15327 (2015) IF: 3.313

The solar cooling technology is a promising alternative to the conventional electrical driven air conditioners, and one of the optimum systems is solar double-effect absorption system. The main objective of this research is to predict, analyze and optimize the performance of the double-effect absorption system. Also it is required to predict the coefficient of performance (COP) and exergetic efficiency (η_{ex}) of the system, and to formulate them in equations as functions of the operating parameters of the cycle. A computer program has been developed by EES (Engineering Equation Solver) software to describe the mathematical model of the used absorption system to carry out the energy and exergy analyses, which were used to analyze the thermodynamic performance of the system. By studying the energetic and exergetic performance of the double-effect absorption cycle for evaporator temperature range of 2–10 °C, absorber and condenser temperature range of 28–45 °C, and HPG temperature range of 100–200 °C, two equations, which are functions of the operating temperatures, have been developed to predict the performance of the cycle.

Keywords: Double-effect; Absorption; Coefficient of performance; Exergetic efficiency.

129. Quantitative Mixture Fraction Measurements in Combustion System Via Laser Induced Breakdown Spectroscopy

Mohy Mansour, Hisham Imam, Khaled A. Elsayed, A.M. Elbaz and Wafaa Abbass

Optics & Laser Technology, 65, 43–49 (2015) IF: 1.647

Laser induced breakdown spectroscopy (LIBS) technique has been applied to quantitative mixture fraction measurements in flames. The measured spectra of different mixtures of natural gas and air are used to obtain the calibration parameters for local elemental mass fraction measurements and hence calculate the mixture fraction. The results are compared with the mixture fraction calculations based on the ratios of the spectral lines of H/N elements, H/O elements and C/(N+O) and they show good agreement within the reaction zone of the flames. Some deviations are observed outside the reaction zone. The ability of LIBS technique as a tool for quantitative mixture fraction as well as elemental fraction measurements in reacting and non-reacting of turbulent flames is feasible.

Keywords: Mixture fraction; LIBS technique; Laser spectroscopy.

Dept. of Public Works**130. Assessing the Potential Impacts of Connected Vehicles: Mobility, Environmental, and Safety Perspectives**

Arash Olia, Hossam Abdelgawad, Baher Abdulhai and Saiedeh N. Razavi

Journal of intelligent Transportation Systems: Technology, Planning, and Operations, 20: 229-243 (2015) IF: 1.377

The connected vehicle is a rapidly emerging paradigm aimed at deploying and developing a fully connected transportation system that enables data exchange among vehicles, infrastructure, and mobile devices to improve mobility, enhance safety, and reduce the adverse environmental impacts of the transportation systems. This study focuses on micromodeling and quantitatively assessing the potential impacts of the connected vehicle (CV) on mobility, safety, and the environment. To assess the benefits of CVs, a modeling framework is developed based on traffic microsimulation for a real network located in the city of Toronto, Canada, to mimic communication between enabled vehicles. In this study, we examine the effects of providing real-time routing guidance and advisory warning messages to CVs. In addition, to take into account the rerouting in nonconnected vehicles (non-CVs) in response to varying sources of information such as apps, global positioning systems (GPS), variable message signs (VMS), or simply seeing the traffic back up, the impact of fraction of non-CV vehicles was also considered and evaluated. Therefore, vehicles in this model are divided into 25 uninformed/unfamiliar not connected (non-CV), 7 informed/familiar but not connected (non-CV) that get updates infrequently every 5 minutes or so (non-CV), and 34 connected vehicles that receive information more frequently (CV). The results demonstrate the potential of connected vehicles to improve mobility, enhance safety, and reduce greenhouse gas emissions (GHGs) at the network-wide level. The results also show quantitatively how the market penetration of connected vehicles proportionally affects the performance of the traffic network. While the presented results are pertinent to the specifics of the road network modeled and cannot be generalized, the quantitative figures provide researchers and practitioners with ideas of what to expect from vehicle connectivity concerning mobility, safety, and environmental improvements.

Keywords: Connected vehicle; Microsimulation; Mobility; Safety; V2V.

131. Robust Network Design for Roadway Networks: Unifying Framework and Application

Agop Koulakezian, Hossam Abdelgawad and Ali Tizghadam

IEEE Intelligent Transportation Systems Magazine, 7: 34-0 (2015) IF: 0.821

Disturbances in roadway networks due to increases in demand or drops in network capacity can severely degrade the performance of the system. The robustness of a roadway network to such disturbances has been investigated using a variety of methods leading to disparate robust network designs. This paper introduces a unifying framework for understanding and applying different robust network designs based on the context of traffic disturbances and design goals. It presents the objectives, requirements and examples of robust network design with long-term (planning) and short-term (operation) goals. A sample case study is presented to assess a short-term robust network design using traffic assignment. The preliminary testing results compared to conventional User Equilibrium and System Optimal traffic assignment, demonstrate 20% and 10% travel time savings with demand increase and supply reduction, respectively.

Keywords: Rail transportation; Supply and demand; Network capacity; Planning; Robust control; Performance evaluation; Traffic control.

132. Data Imputation and Nested Seasonality Time Series Modelling for Permanent Data Collection Stations: Methodology and Application to Ontario

Hossam Abdelgawad, Tamer Abdulazim, Baher Abdulhai, Alireza Hadayeghi and William Harrettd

Canadian Journal of civil Engineering, 42: 287-302 (2015) IF: 0.556

Analysis and literature review have indicated that transportation agencies often report significant percentage of missing values of traffic volumes collected at permanent data collection stations (PDCS). These missing values can be as high as 60% in some cases. Although invested significantly in legacy systems that rely primarily on inductive loop detectors to collect traffic volumes, transportation agencies are faced with a challenge of relying only on a small set of the traffic data. Despite the fact that transportation agencies are often required to report on various annual traffic statistics such as average annual daily traffic (AADT) and vehicles miles travelled, little research is available on how transportation practitioners handled missing values in their traffic data collection efforts. In this paper, a simple iterative approach is introduced — based on the integration of an imputation algorithm and a time series model — to impute missing PDCS data. The approach is designed such that the imputation algorithm is implemented first to impute relatively small to medium gaps forming a library of complete datasets; then a time series model is fitted to these stations to form the base for imputing large gaps. The data imputation algorithm is applied on a case study on Ministry of Transportation of Ontario PDCS stations, Canada. The average errors for imputing as high as 90% of missing data — with maximum continuous gaps of 76 h — were approximately 16% with an average median error of 11 veh/h. After all traffic data are imputed, a time series model is estimated to capture the multiple seasonalities and trends in the traffic data across multiple years. The estimated “model” is

then used to calculate and produce seasonal variation factors and graphs that are typically required for planning, design, control, operation, and management of traffic and highway facilities. By estimating the model parameters using existing raw data, the model was then tested to assess its accuracy to forecast future years.

Keywords: Missing traffic data; Data imputation; Trends and Seasonality; Time series; Seasonal graphs.

133. Assessment of Self-Learning Adaptive Traffic Signal Control on Congested Urban Areas: Independent Versus Coordinated Perspectives

Hossam Abdelgawad, Baher Abdulhai, Samah El-Tantawy, Alireza Hadayeghi and Brue Zvaniga

Canadian Journal of civil Engineering, 42: 353-366 (2015) IF: 0.556

In this paper, we introduce a simulation testbed framework to evaluate the performance of a self-learning adaptive traffic signal control system. The core contribution of this paper is the assessment of the system's two modes of operations (independent versus coordinated) under different congestion levels and network configurations. The insights and conclusions of the paper are based on the synergetic effect of the following: (1) appropriate design of the adaptive system parameters, (2) seamless design of generic interfaces between the adaptive system and the simulation environment using application programming interfaces, (3) rigorously calibrated simulation model and a comprehensive set of performance and environmental measures, and (4) investigation of the system components required for building a complete functioning system in the field. The system was designed and lab-tested on two case studies in the City of Burlington, Ontario. The intersections were designed and operated using the adaptive system and compared to the actuated optimized and coordinated base case timings plans. The analysis of the simulation results shows that overall the adaptive system outperforms the base case scenario by up to 25% savings in delay at the network level, and 15% reduction in CO₂ emission. On the other hand, the results of the two testbed models indicate that the performance of the adaptive system varies according to the intersection conditions and flows, network configuration, traffic volume, variability in flow arrivals, and the proximity of intersections to each other.

Keywords: Reinforcement learning; Game theory; Adaptive traffic signal control; Multi-agent reinforcement learning; Two-dimensional coordination; Microsimulation modelling; Emission modelling; Hardware and Software integration.

134. Framework for Automating Travel Activity Inference Using Land Use Data the Case Foursquare in the Greater Toronto and Hamilton Area, Ontario, Canada

Abdulazim.Tamer, Abdelgawad. Hossam, Habib. Khandker M Nurul and Abdulhai. Baher

Transportation Research Record, 2526: 0-0 (2015) IF: 0.544

This paper introduces a framework for inferring activity travel given nearby land use information that can be obtained from a location-based social network (LBSN) such as Foursquare. The first component of the framework implements a generic method

for acquiring land use data from LBSN services, which is a prerequisite for the inference algorithm. Three inference algorithms are suggested, and situations in which each algorithm might be a better fit are discussed. Finally, a case study is presented for activity inference applied to a data set collected in the greater Toronto and Hamilton area, Ontario, Canada, during the fall of 2012. Results are encouraging and suggest that it is possible to infer daily activity travel automatically; this possibility could significantly reduce the burdens of personal travel surveys and allow for collection of long-period travel diary data that is not easily achievable with traditional survey methods.

Keywords: Algorithms; Data collection; Land use; Location based services; Methodology; Mobile applications; Travel surveys; Trip purpose.

Dept. of Systems and Biomedical Engineering

135. Two Repetition Time Saturation Transfer (TwIST) with Spill-Over Correction to Measure Creatine Kinase Reaction Rates in Human Hearts

Michael Schär | Email author, Refaat E. Gabr, AbdEl-Monem M. El-Sharkawy, Angela Steinberg, Paul A. Bottomley and Robert G. Weiss

Journal of Cardiovascular Magnetic Resonance, 17:70: 1-11 (2015) IF: 4.719

Background: Phosphorus saturation transfer (ST) magnetic resonance spectroscopy can measure the rate of ATP generated from phosphocreatine (PCr) via creatine kinase (CK) in the human heart. Recently, the triple-repetition time ST (TRiST) method was introduced to measure the CK pseudo-first-order rate constant k_f in three acquisitions. In TRiST, the longitudinal relaxation time of PCr while γ -ATP is saturated, T_1' , is measured for each subject, but suffers from low SNR because the PCr signal is reduced due to exchange with saturated γ -ATP, and the short repetition time of one of the acquisitions. Here, a two-repetition time ST (TwIST) method is presented. In TwIST, the acquisition with γ -ATP saturation and short repetition time is dropped. Instead of measuring T_1' , an intrinsic relaxation time T_1 for PCr, T_1 intrinsic, is assumed. The objective was to validate TwIST measurements of CK kinetics in healthy subjects and patients with heart failure (HF).

Methods: Bloch equation simulations that included the effect of spillover irradiation on PCr were used to derive formulae for T_1 intrinsic and k_f measured by both TRiST and TwIST methods. Spillover was quantified from an unsaturated PCr measurement used in the current protocol for determining PCr and ATP concentrations. Cardiac TRiST and TwIST data were acquired at 3 T from 12 healthy and 17 HF patients.

Results: Simulations showed that both k_f measured by TwIST and T_1 intrinsic require spill-over corrections. In human heart at 3 T, the spill-over corrected T_1 intrinsic = 8.4 ± 1.4 s (mean \pm SD) independent of study group. TwIST and TRiST k_f measurements were the same, but TwIST was 9 min faster. Spill-over corrected TwIST k_f was 0.33 ± 0.08 s⁻¹ vs. 0.20 ± 0.06 s⁻¹ in healthy vs HF hearts, respectively ($p < 0.0001$).

Conclusion: TwIST was validated against TRiST in the human heart at 3 T, generating the same results 9 min faster. TwIST detected significant reductions in CK k_f in HF compared to

healthy subjects, consistent with prior 1.5 T studies using different methodology.

Keywords: Saturation transfer; Human heart; Metabolism; Reaction rate; High-Energy Phosphate; Heart failure 3 Tesla Creatine-kinase; Twist.

136. Monitoring Local Heating Around an Interventional Mri Antenna with Rf Radiometry

Ertürk MA, El-Sharkawy AM and Bottomley PA

Medical Physics, 42(3): 1411-1423 (2015) IF: 2.635

Purpose: Radiofrequency (RF) radiometry uses thermal noise detected by an antenna to measure the temperature of objects independent of medical imaging technologies such as magnetic resonance imaging (MRI). Here, an active interventional MRI antenna can be deployed as a RF radiometer to measure local heating, as a possible new method of monitoring device safety and thermal therapy.

Methods: A 128 MHz radiometer receiver was fabricated to measure the RF noise voltage from an interventional 3 T MRI loopless antenna and calibrated for temperature in a uniformly heated bioanalogous gel phantom. Local heating (ΔT) was induced using the antenna for RF transmission and measured by RF radiometry, fiber-optic thermal sensors, and MRI thermometry. The spatial thermal sensitivity of the antenna radiometer was numerically computed using a method-of-moment electric field analyses. The gel's thermal conductivity was measured by MRI thermometry, and the localized time-dependent ΔT distribution computed from the bioheat transfer equation and compared with radiometry measurements. A "H-factor" relating the 1 g-averaged ΔT to the radiometric temperature was introduced to estimate peak temperature rise in the antenna's sensitive region.

Results: The loopless antenna radiometer linearly tracked temperature inside a thermally equilibrated phantom up to 73 °C to within ± 0.3 °C at a 2 Hz sample rate. Computed and MRI thermometric measures of peak ΔT agreed within 13%. The peak 1 g-average temperature was $H = 1.36 \pm 0.02$ times higher than the radiometric temperature for any media with a thermal conductivity of 0.15-0.50 (W/m)/K, indicating that the radiometer can measure peak 1 g-averaged ΔT in physiologically relevant tissue within ± 0.4 °C.

Conclusions: Active internal MRI detectors can serve as RF radiometers at the MRI frequency to provide accurate independent measures of local and peak temperature without the artifacts that can accompany MRI thermometry or the extra space needed to accommodate alternative thermal transducers. A RF radiometer could be integrated in a MRI scanner to permit "self-monitoring" for assuring device safety and/or monitoring delivery of thermal therapy.

Keywords: Mri safety; Radiometry; Mri Thermometry; Rf safety, Interventional mri; Local heating; Specific absorption rate.

Faculty of Computers and Information

Dept. of Information Technology

137. Stereo-based histogram equalization for robust speech recognition

Randa Al-Wakeel, Mahmoud Shoman, Magdy Aboul-Ela and Sherif Abdou

EURASIP Journal on Audio, Speech, and Music Processing, (2015) IF: 0.39

Optimal automatic speech recognition (ASR) takes place when the recognition system is tested under circumstances identical to those in which it was trained. However, in the actual real world, there exist many sources of mismatches between the environment of training and the environment of testing. These sources can be due to the sources of noise that exist in real environments. Speech enhancement techniques have been developed to provide ASR systems with the robustness against the sources of noise. In this work, a method based on histogram equalization (HEQ) was proposed to compensate for the nonlinear distortions in speech representation. This approach utilizes stereo simultaneous recordings for clean speech and its corresponding noisy speech to compute stereo Gaussian mixture model (GMM). The stereo GMM is used to compute the cumulative density function (CDF) for both clean speech and noisy speech using a sigmoid function instead of using the order statistics that is used in other HEQ-based methods. In the implementation, we show two choices to apply HEQ, hard decision HEQ and soft decision HEQ. The latter is based on minimum mean square error (MMSE) clean speech estimation. The experimental work shows that the soft HEQ and hard HEQ achieve better recognition results than the other HEQ approaches such as tabular HEQ, quantile HEQ and polynomial fit HEQ. It also shows that soft HEQ achieves notably better recognition results than hard HEQ. The results of the experimental work also show that using HEQ improves the efficiency of other speech enhancement techniques such as stereo piece-wise linear compensation for environment (SPLICE) and vector Taylor series (VTS). The results also show that using HEQ in multi style training (MST) significantly improves the ASR system performance.

Keywords: Robust speech recognition; Speech feature normalization; Histogram equalization; Speech enhancement.

138. Long-Distance Continuous Space Language Modeling for Speech Recognition

Mohamed Talaat, Sherif Mahdy Abdou and Mahmoud Ahmed Ismail Shoman

Lecture Notes in Computer Science, (2015)

The n-gram language models has been the most frequently used language model for a long time as they are easy to build models and require the minimum effort for integration in different NLP applications. Although of its popularity, n-gram models suffer from several drawbacks such as its ability to generalize for the unseen words in the training data, the adaptability to new domains, and the focus only on short distance word relations. To overcome the problems of the n-gram models the continuous parameter space LMs were introduced. In these models the words are treated as vectors of real numbers rather than of

discrete entities. As a result, semantic relationships between the words could be quantified and can be integrated into the model. The infrequent words are modeled using the more frequent ones that are semantically similar. In this paper we present a long distance continuous language model based on a latent semantic analysis (LSA). In the LSA framework, the word-document co-occurrence matrix is commonly used to tell how many times a word occurs in a certain document. Also, the word-word co-occurrence matrix is used in many previous studies. In this research, we introduce a different representation for the text corpus, this by proposing long-distance word co-occurrence matrices. These matrices to represent the long range co-occurrences between different words on different distances in the corpus. By applying LSA to these matrices, words in the vocabulary are moved to the continuous vector space. We represent each word with a continuous vector that keeps the word order and position in the sentences. We use tied-mixture HMM modeling (TM-HMM) to robustly estimate the LM parameters and word probabilities. Experiments on the Arabic Gigaword corpus show improvements in the perplexity and the speech recognition results compared to the conventional n-gram.

Institute of Statistical Studies and Research

Dept. of Applied Statistics and Econometrics

139. Estimation in Mixed-Effects Functional Anova Models

E.A. Rady, N.M. Kilany and S.A. Eliwa

Journal of Multivariate Analysis, 133: 346-355 (2015) IF: 0.93

Functional mixed effects models are very useful in analyzing data. In this paper, we consider a functional mixed effects model, where the observations are the real functions, and derive the maximum likelihood estimators of the functional parameters and variance components. The properties of the maximum likelihood estimators are also investigated.

Keywords: Linear mixed-effects models; Functional analysis of variance; Maximum likelihood estimator.

Dept. of Mathematical Statistics

140. An Improved Differential Evolution Algorithm With Triangular Mutation for Global Numerical Optimization

Ali Wagdy Mohamed

Computers and Industrial Engineering, 85: 359-375 (2015) IF: 1.738

This paper presents an Improved Differential Evolution (IDE) algorithm for solving global numerical optimization problems over continuous space. The proposed algorithm introduces a new triangular mutation rule based on the convex combination vector of the triplet defined by the three randomly chosen vectors and the difference vector between the best and the worst individuals among the three randomly selected vectors. The mutation rule is combined with the basic mutation strategy through a non-linear decreasing probability rule. Furthermore, a restart mechanism is also proposed to avoid premature convergence. IDE is tested on

a well-known set of unconstrained problems and shows its superiority to state-of-the-art differential evolution variants.

Keywords: Evolutionary computation; Global optimization; Differential evolution; Triangular mutation; Dynamic non-linear crossover.

141. Fisher Information Matrix for the Generalized Feller-pareto Distribution

Mahmoud Riad Mahmoud and Amani Shaheen Abd El-Ghafour

Communications in Statistics - Theory and Methods, 44:20: 4396-4407 (2015) IF: 0.274

In this article, the exact form of Fisher information matrix for the generalized Feller-Pareto (GFP) distribution is determined. The GFP family is a general distribution which includes a variety of distributions as special cases. For example:

- Generalized Singh-Maddala distribution which in turn includes Burr, Fisk, and Lomax distribution (see Kleiber and Kotz, 2003);
- A Pareto IV distribution which includes a hierarchy of Pareto models, omitted an additional location parameter (see Arnold, 1983, 2008); and
- Beta Lomax distribution which includes, for example, beta II and Lomax distributions.

Application of these distributions covers a wide spectrum of areas ranging from actuarial science, economics, finance to bioscience, telecommunications, and medicine.

Keywords: Fisher information; Beta lomax; Generalized singh-maddala; Generalized feller-pareto; Beta burr Xii.

142. Further Results on Discrete Mean Past Lifetime

G. Asha, I. Elbatal and C. J. Rejeesh

Communications in statistics theory and methods, 45: 1081-1098 (2015) IF: 0.274

The present paper aims at studying the mean past lifetime of a discrete random variable. The notion of discrete mean past lifetime is studied in relation to the concepts of reversed hazard rate, reversed lack of memory property, and cumulative past entropy. New classes of distributions characterized by particular forms of discrete mean past life are also investigated. Implications of an increasing mean past lifetime on other reliability notions are studied and finally some bivariate generalizations are discussed.

Keywords: Characterizations; Discrete mean past lifetime; Past entropy; Reversed lack of memory; Stochastic ordering.

143. The Beta Quadratic Hazard Rate Distribution

Merovci. Faton and Elbatal. Ibrahim

Pak. J. Statist., 31: 427-446 (2015) IF: 0.14

A five-parameter distribution so-called the beta quadratic hazard rate distribution is defined and studied. The new distribution contains, as special submodels, several important distributions, such as the Linear failure rate, Rayleigh and Exponential distributions. We derive the moments and examine the order statistics. We propose the method of maximum likelihood for estimating the model parameters and obtain the observed information matrix.

Keywords: Quadratic hazard rate distribution; Order statistics; Maximum likelihood estimation; Reliability function.

144. Application of Optimal Control Theory to Solve Three Stages Supply Chain Model

Hegazy Zaher and Taher Taha Zaki

Global Journal of Pure and Applied Mathematics, 11(1): 167-174 (2015)

This paper presents an optimal control Theory to manage three stages dynamic supply chain model with deteriorating items. The model is continuous time linear optimal control system to optimize both manufacture rate and dynamic price to maximize total supply chain revenue minus total cost. Assuming the demand is linear function of price. Supply chain cost consists of the vendor holding cost, the buyer holding cost and the vendor manufacture cost. Pontryagin Maximum Principle is applied to find the model optimal solution.

Keywords: Optimal control; Supply chain.

145. Kumaraswamy Modified Inverse Weibull Distribution: Theory and Application

Gokarna Aryal and Ibrahim Elbatal

Applied Mathematics and Information Sciences, 9: 651-660 (2015)

In this article, we propose a generalization of the modified inverse Weibull distribution. The generalization are motivated by the recent work of Cordeiro et al. [2] and are based on the Kumaraswamy distribution. The generalized distribution is called the Kumaraswamy modified inverse Weibull(KMIW) distribution. We provide a comprehensive description of the structural properties of the subject distribution and explore some of its special cases. It will be shown that the analytical results are applicable to model real world data. vated by the recent work of Cordeiro et al. [2] and are based on the Kumaraswamy distribution. The generalized distribution is called the Kumaraswamy modified inverse Weibull(KMIW) distribution. We provide a comprehensive description of the structural properties of the subject distribution and explore some of its special cases. It will be shown that the analytical results are applicable to model real world data.

Keywords: Kumaraswamy distribution; Hazard function; Modified inverse weibull distribution; Maximum likelihood; Order statistic.

146. The New Kumaraswamy Kumaraswamy Family of Generalized Distributions with Application

Mohamed Ali Ahmed, Mahmoud Riad Mahmoud and Elsayed Ahmed ElSherbini

Pakistan Journal of Statistics and Operation Research, 11: 159-180 (2015)

Finding the best fitted distribution for data set becomes practically an important problem in world of data sets so that it

is useful to use new families of distributions to fit more cases or get better fits than before. In this paper, a new generating family of generalized distributions so called the Kumaraswamy - Kumaraswamy (KW-KW) family is presented. Four important common families of distributions are illustrated as special cases from the KW KW family. Moments, probability weighted moments, moment generating function, quantile function, median, mean deviation, order statistics and moments of order statistics are obtained. Parameters estimation and variance covariance matrix are computed using maximum likelihood method. A real data set is used to illustrate the potentiality of the KW KW weibull distribution (which derived from the kw kw family) compared with other distributions.

Keywords: Kumaraswamy kumaraswamy distribution; Moments; Order statistics; Quantile function; Maximum likelihood estimation.

147. The Mcdonald Exponentiated Gamma Distribution and its Statistical Properties

Abdulhakim A Al-Babtain, Faton Merovci and Ibrahim Elbatal

Springerplus, 4: 1-22 (2015)

In this paper, we propose a five-parameter lifetime model called the McDonald exponentiated gamma distribution to extend beta exponentiated gamma, Kumaraswamy exponentiated gamma and exponentiated gamma, among several other models. We provide a comprehensive mathematical treatment of this distribution. We derive the moment generating function and the r th moment. We discuss estimation of the parameters by maximum likelihood and provide the information matrix.

Keywords: Mcdonald exponentiated gamma distribution; Moments; Exponentiated gamma distribution; Order statistics; Maximum likelihood estimation.

148. Weibull Rayleigh Distribution: Theory and Applications

Faton Merovci and Ibrahim Elbatal

Applied Mathematics and Information Sciences, 9: 1-11 (2015)

For the first time, a three-parameter lifetime model, called the Weibull Rayleigh distribution, is defined and studied. We obtain some of its mathematical properties. Some structural properties of the new distribution are studied. The method of maximum likelihood and least squares methods is used for estimating the model parameters and the observed Fisher's information matrix is derived. We illustrate the usefulness of the proposed model by applications to real data.

Keywords: Weibull-rayleigh distribution, Hazard function, Moments, Maximum likelihood estimation.



Cairo University

International Publications Awards

Cairo University



(3)

Medical

Sciences Sector

3-1 Faculty of Medicine

3-2 Faculty of Oral & Dental Medicine

3-3 Faculty of Pharmacy

3-4 National Cancer Institute

3-5 Faculty of Physical Therapy

Total No. of Publication for Medical Sciences Sector

Faculty	2006	2007	2008	2009	2010
Medicine	49	64	124	154	226
Pharmacy	27	40	77	104	126
National Cancer Institute	9	16	16	27	37
Oral and Dental Medicine			1	15	19
Physical Therapy					1
Nursing			1	4	2
Total	85	120	219	304	411

Faculty	2011	2012	2013	2014	2015	Total
Medicine	350	338	388	324	406	
Pharmacy	224	261	297	240	293	
National Cancer Institute	52	46	57	37	53	
Oral and Dental Medicine	23	21	20	17	15	
Physical Therapy	3	30	10	18	34	
Nursing	6	5	20	30	52	
Total	658	701	792	666	853	

Faculty of Medicine

Dept. of Andrology and Sexology

149. Assessment of Female Sexual Function in A Group of Uncircumcised Obese Egyptian Women

ARM Elnashar, NH Ibrahim, H-EH Ahmed, AM Hassanin and MA Elgawady

International Journal of Impotence Research, 27: 178-181 (2015) IF: 1.756

The aim of the present study is to assess female sexual function in an obese group (250 women) and to compare it with a control one (100 women), among 25-35 years old uncircumcised Egyptian women, using female sexual function index (FSFI) score. FSFI total score of = 26.55 was considered diagnostic of Female Sexual Dysfunction (FSD). The percentage of FSD in the obese group was 73.6% while it was 71% in the control one, which was statistically insignificant ($P > 0.05$). The difference between both groups regarding the total (FSFI) score was insignificant ($P > 0.05$) but arousal and satisfaction domains scores were significantly lower in the obese group. In the obese group, a strong negative correlation between BMI and arousal, orgasm and the total FSFI score was found. Excessive obesity had the lowest total FSFI score. In the obese group college graduates had the highest scores of the total and of all domains scores of FSFI followed by high school graduates while the least educated women had the lowest scores and when these subgroups were compared, significant differences were found among them. We conclude that in uncircumcised 25-35 years old Egyptian women obesity is not a major detrimental factor of FSD, but it may affect some sexual domains as arousal and satisfaction, despite excessive obesity is associated with FSD. Also educational and cultural factors may have an impact on perception of sex and pleasure.

Keywords: Female sexual dysfunction uncircumcised Egyptian.

Dept. of Anesthesiology

150. Pitfalls in Reporting Sample Size Calculation in Randomized Controlled Trials Published in Leading Anaesthesia Journals: A Systematic Review

M. Abdulatif, A. Mukhtar and G. Obayah

British Journal of Anaesthesia, 115: 699-707 (2015) IF: 4.853

We have evaluated the pitfalls in reporting sample size calculation in randomized controlled trials (RCTs) published in the 10 highest impact factor anaesthesia journals. Superiority RCTs published in 2013 were identified and checked for the basic components required for sample size calculation and replication. The difference between the reported and replicated sample size was estimated. The sources used for estimating the expected effect size (Δ) were identified, and the difference between the expected and observed effect sizes (Δ gap) was estimated. We enrolled 194 RCTs. Sample size calculation was reported in 91.7% of studies. Replication of sample size calculation was possible in 80.3% of studies. The original and replicated sample sizes were identical in 67.8% of studies. The difference between the replicated and reported sample sizes exceeded 10% in 28.7% of studies. The expected and observed effect sizes were comparable in RCTs with positive outcomes ($P=0.1$). Studies with negative outcome tended to overestimate

the effect size (Δ gap 42%, 95% confidence interval 32–51%), $P < 0.001$. Post hoc power of negative studies was 20.2% (95% confidence interval 13.4–27.1%). Studies using data derived from pilot studies for sample size calculation were associated with the smallest Δ gaps ($P=0.008$). Sample size calculation is frequently reported in anaesthesia journals, but the details of basic elements for calculation are not consistently provided. In almost one-third of RCTs, the reported and replicated sample sizes were not identical and the assumptions for the expected effect size and variance were not supported by relevant literature or pilot studies.

Keywords: Research hypothesis; Effect size Statistical power; Sample size study design; Superiority trials.

151. Intra-operative Assessment of Pulmonary Artery Pressure by Transoesophageal Echocardiography

D. Soliman, D. Bolliger, K. Skarvan, B. A. Kaufmann, G. Lurati Buse and M. D. Seeberger

Anaesthesia, 70: 264-271 (2015) IF: 3.382

The clinical value of the estimation of systolic pulmonary artery pressure, based on Doppler assessment of peak tricuspid regurgitant velocity using transoesophageal echocardiography, is unclear. We studied 109 patients to evaluate the feasibility of obtaining adequate Doppler recordings, and compared Doppler estimates with values measured using a pulmonary artery catheter in a subset of 33 patients. Tricuspid regurgitation was evaluated at the midoesophageal level at 0–120° using Doppler echocardiography. A Doppler signal was defined as adequate if there was a = 20° alignment and a full envelope. Doppler estimates of systolic pulmonary artery pressure within 10 mmHg and 15% of the value recorded with the pulmonary artery catheter were considered to be in sufficient agreement. Adequate Doppler signals were obtained in 64/109 (59%) patients before and 54/103 (52%) after surgery. Doppler estimates by transoesophageal echocardiography were within 10 mmHg and 15% of values recorded with the pulmonary artery catheter in 28/33 (75%) patients and 22/31 (55%) patients, respectively. In 7 (21%) patients, the echocardiographic Doppler measurement exceeded the measured systolic pulmonary artery pressure by more than 30%. Our study indicates that estimation of the systolic pulmonary artery pressure using transoesophageal Doppler echocardiography is not a reliable and clinically useful method in anaesthetised patients undergoing mechanical ventilation.

Keywords: Transesophageal echocardiography; Pulmonary artery pressure.

152. Evaluation of Perfusion Index as A Predictor of Vasopressor Requirement in Patients with Severe Sepsis

Islam Rasmy, Hossam Mohamed, Nashwa Nabil, Sabah Abdallah A. Hasanin, Akram Eladawy, Mai Ahmed and Ahmed Mukhtar

Shock, 44: 554-559 (2015) IF: 3.045

We evaluated the ability of perfusion index (PI) to predict vasopressor requirement during early resuscitation in patients with severe sepsis. All consecutive patients with clinically suspected severe sepsis as defined by the criteria of the American College of Chest Physicians/Society of Critical Care Medicine Consensus Conference were included. Perfusion variables included PI, arterial lactate level, central venous

oxygen saturation, and the difference between central venous carbon dioxide and arterial carbon dioxide pressures, and were recorded before resuscitation and 6 h thereafter. We enrolled 36 patients with severe sepsis. Twenty-one patients required vasopressors, whereas 15 did not. The cut-off of the PI value for predicting vasopressor requirement was = 0.3. This cut-off value had a sensitivity of 100% and a specificity of 93%; the area under the curve was 0.96 (95% confidence interval 0.8–0.99, $P < 0.0001$). The cut-off of the arterial lactate level for predicting vasopressor requirement was ≥ 1.8 mg dL. This cut-off value had a sensitivity of 82% and a specificity of 80%; the area under the curve was 0.84 (95% CI 0.68–0.94, $P < 0.0001$). Other perfusion variables failed to predict vasopressor requirement in patients with severe sepsis. We concluded that PI and arterial lactate level are good predictors of vasopressor requirement during early resuscitation in patients with severe sepsis. Further studies are warranted to investigate whether monitoring PI during resuscitation improves the outcome of patients with septic shock.

Keywords: Central venous oxygen saturation; Lactate; Mortality; Perfusion index; Severe sepsis; Venous–arterial carbon dioxide pressure difference.

153. Sidestream Versus Incident Dark Field Imaging: How to Compare two Different Technologies to Study the Microcirculation*

Lehmann C, Sardinha J and Mukhtar AM

J Clin Monit Comput, 29: 539-540 (2015) IF: 1.985

Proper perfusion of tissues and organs is necessary for the maintenance of physiologic functioning and homeostasis. The microcirculation, comprised of the smallest vessels such as capillaries, venules, and arterioles, is responsible for the delivery of oxygen and nutrients. Microhemodynamic changes during disease states can impair proper microcirculatory function leading to a hypoxic state and a buildup of waste products in certain body tissue.

Keywords: SDF; IDF; Microcirculation.

154. Intraoperative Terlipressin Therapy Reduces the Incidence of Postoperative Acute Kidney Injury after Living Donor Liver Transplantation

Mukhtar A, Mahmoud I, Obayah G, Hasanin A, Aboul-Fetouh, Dabous H, Bahaa M, Abdelaal A, Fathy M and El Meteini M

J. Cardiothorac Vasc Anesth., 29: 678-683 (2015) IF: 1.463

Objective: To evaluate the effect of intraoperative infusion with terlipressin on the incidence of AKI following LDLT, Design: Retrospective case-controlled study Setting: Governmental hospital Participants: we reviewed retrospectively the medical records of 303 patients who underwent LDLT.

Interventions: Patients were divided into two groups on the basis of intraoperative administration of terlipressin. The primary outcome was AKI, as defined by AKIN criteria. Secondary outcomes included the requirement for postoperative dialysis and in-hospital mortality. Measurements and main

Results: The incidence of AKI was 38% ($n=115$); AKI occurred in 24 (24.2%) patients who received terlipressin versus 91 (44.6%) in the control group ($P=0.001$). The incidence of postoperative dialysis was 9.2% ($n=28$). Postoperative dialysis

was needed by 8 patients (8.1%) in the terlipressin group versus 20 patients (9.8%) in the control group ($P=0.62$). Multivariate logistic regression analysis indicated that terlipressin protected against AKI (odds ratio [OR], 0.4; 95% confidence interval [CI], 0.2–0.8; $P=0.013$) but not the need for dialysis (OR 0.7; 95% CI, 0.2–2.2; $P=0.53$) or the in-hospital mortality (OR, 1.1; 95% CI, 0.5–2.3; $P=0.7$). Adjustment, using the propensity score, did not alter the association between the use of terlipressin and AKI reduction (OR, 0.46; 95% CI, 0.22–0.89; $P=0.03$).

Conclusion: These results suggest that intraoperative terlipressin therapy is associated with significant reductions in the risk of AKI in LDLT patients.

Keywords: Living donor liver transplantation; Risk factors; Renal injury; Dialysis; Mortality; Terlipressin.

155. Dexamethasone Preventing Dural Puncture Headache

Maher Fawzy Mahmoud, Hassan Mohamed Ali, Mohamed Mourad Hashim and Ahmed Abdel Kader Fahmy

Journal of Pain Management, 7: 273-277 (2015)

The usual practice of anaesthesia all over the world for caesarean section is spinal anaesthesia, which is associated with post dural puncture headache (PDPH) as a common complication. Intrathecal dexamethasone hypothetically will prevent PDPH due to its anti-inflammatory effect as it suppresses the inflammatory mediators released after the dural puncture.

Methods: A double blinded randomized study of 444 females scheduled for elective Caesarean section were included in this study and allocated to three groups, D4 group ($n=138$) with 4 mg dexamethasone intrathecal, group D8 ($n=151$) with 4 mg intrathecal and a control group ($n=155$) injected with placebo. The three groups were monitored for incidence, severity and duration of PDPH.

Results: PDPH developed in 24 cases (17.39%) in D4 group, 26 cases (17.2%) in D8 group and 51 cases (32.9%) in control group (p value >0.05), there was no significant difference in the incidence, severity or duration of PDPH between D4 and D8 groups ($p>0.05$). Ephedrine dose requirement in D4 (15.32 ± 9.252) and in D8 (14.11 ± 15.19), while in the control group it was (27.2 ± 12.125) with p value <0.01

Conclusions: intrathecal dexamethasone, either 4 mg or 8 mg decrease the PDPH, but with no statistical difference, but as a secondary result it can reduce the hypotension from the spinal anaesthesia ($p<0.01$).

Keywords: Intrathecal injection; Postdural puncture headache; Dexamethasone.

Dept. of Cardiology

156. Pregnancy in Women with A Mechanical Heart Valve: Data of the European Society of Cardiology Registry of Pregnancy and Cardiac Disease (ROPAC)

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Circulation, 132: 132-142 (2015) IF: 15.073

Background: Pregnant women with a mechanical heart valve (MHV) are at a heightened risk of a thrombotic event while their absolute need for adequate anticoagulation puts them at considerable risk of bleeding and, with some anticoagulants, fetotoxicity.

Methods and Results: Within the prospective, observational, contemporary, worldwide Registry of Pregnancy and Cardiac disease (ROPAC) we describe the pregnancy outcome of 212 patients with a MHV. We compare them to 134 patients with a tissue heart valve (THV) and 2620 other patients without a prosthetic valve (NoPHV). Maternal mortality occurred in 1.4% of the MHV patients, in 1.5% of THV patients ($p=1.000$) and in 0.2% of NoPHV patients ($p=0.025$). Mechanical valve thrombosis complicated pregnancy in 10 (4.7 %MHV patients; in five of them the valve thrombosis occurred in the first trimester, and all five had been switched to some form of heparin. Hemorrhagic events occurred in 23.1% of MHV patients, in 5.1% of THV patients ($p<0.001$) and in 4.9% of NoPHV patients ($p<0.001$). Only 58% of the MHV patients had a pregnancy free of serious adverse events, versus 79% of THV patients ($p<0.001$) and 78% of NoPHV patients ($p<0.001$). Vitamin K antagonist use in the first trimester compared with heparin was associated with a higher rate of miscarriage (28.6% versus 9.2%, $p<0.001$) and late fetal death (7.1% versus 0.7%, $p=0.016$).

Conclusions: Women with a MHV have only a 58% chance of experiencing an uncomplicated pregnancy with live birth. The markedly increased mortality and morbidity warrants extensive pre-pregnancy counseling and centralization of care.

Keywords: Pregnancy; Valve; Prosthesis; Thrombosis; Heart Defects; Congenital.

157. Acute Myocardial Ischemia in Adults Secondary to Missed Kawasaki Disease in Childhood

Rizk SR, El Said G, Daniels LB, Burns JC, El Said H, Sorour KA, Gharib S and Gordon JB

American Journal of Cardiology, 115: 423-427 (2015) IF: 3.276

Coronary artery aneurysms that occur in 25% of untreated Kawasaki disease (KD) patients may remain clinically silent for decades and then thrombose resulting in myocardial infarction. Although KD is now the most common cause of acquired heart disease in children in Asia, the United States, and Western Europe, the incidence of KD in Egypt is unknown. We tested the hypothesis that young adults in Egypt presenting with acute myocardial ischemia may have coronary artery lesions because of KD in childhood. We reviewed a total of 580 angiograms of patients ≥ 40 years presenting with symptoms of myocardial ischemia. Coronary artery aneurysms were noted in 46 patients (7.9%), of whom 9 presented with myocardial infarction. The likelihood of antecedent KD as the cause of the aneurysms was classified as definite ($n = 10$), probable ($n = 29$), or equivocal ($n = 7$). Compared with the definite and probable groups, the equivocal group had more traditional cardiovascular risk factors, smaller sized aneurysms, and fewer coronary arteries affected. In conclusion, in a major metropolitan center in Egypt, 6.7% of adults aged ≥ 40 years who underwent angiography for evaluation of possible myocardial ischemia had lesions consistent with antecedent KD. Because of the unique therapeutic challenges associated with these lesions, adult cardiologists should be aware that coronary artery aneurysms in young adults may be because of missed KD in childhood.

Keywords: Aneurysm; Kawasaki disease; Ischemic heart disease; Coronary artery disease; Angiograms; Multi-slice Ct.

158. Impact of Routine Cerebral CT Angiography on Treatment Decisions in Infective Endocarditis

Marwa Sayed Meshaal, Hussein Heshmat Kassem, Ahmad Samir, Ayman Zakaria, Yasser Baghdady and Hussein Hassan Rizk

Plos One, 1-10 (2015) IF: 3.234

Background: Infective endocarditis (IE) is commonly complicated by cerebral embolization and hemorrhage secondary to intracranial mycotic aneurysms (ICMAs). These complications are associated with poor outcome and may require diagnostic and therapeutic plans to be modified. However, routine screening by brain CT and CT angiography (CTA) is not standard practice. We aimed to study the impact of routine cerebral CTA on treatment decisions for patients with IE.

Methods: From July 2007 to December 2012, we prospectively recruited 81 consecutive patients with definite left-sided IE according to modified Duke's criteria. All patients had routine brain CTA conducted within one week of admission. All patients with ICMA underwent four-vessel conventional angiography. Invasive treatment was performed for ruptured aneurysms, aneurysms ≥ 5 mm, and persistent aneurysms despite appropriate therapy. Surgical clipping was performed for leaking aneurysms if not amenable to intervention.

Results: The mean age was 30.43 ± 8.8 years and 60.5% were males. Staph aureus was the most common organism (32.3%). Among the patients, 37% had underlying rheumatic heart disease, 26% had prosthetic valves, 23.5% developed IE on top of a structurally normal heart and 8.6% had underlying congenital heart disease. Brain CT/CTA revealed that 51 patients had evidence of cerebral embolization, of them 17 were clinically silent. Twenty-six patients (32%) had ICMA, of whom 15 were clinically silent. Among the patients with ICMAs, 11 underwent endovascular treatment and 2 underwent neurovascular surgery. The brain CTA findings prompted different treatment choices in 21 patients (25.6%). The choices were aneurysm treatment before cardiac surgery rather than at follow-up, valve replacement by biological valve instead of mechanical valve, and withholding anticoagulation in patients with prosthetic valve endocarditis for fear of aneurysm rupture.

Conclusions: Routine brain CT/CTA resulted in changes in the treatment plan in a significant proportion of patients with IE, even those without clinically evident neurological disease. Routine brain CT/CTA may be indicated in all hospitalized patients with IE.

Dept. of Clinical & Chemical Pathology

159. Circulating MiRNA-122, MiRNA – 199a, and MiRNA - 16 as Biomarkers for Early Detection of Hepatocellular Carcinoma in Egyptian Patients with Chronic Hepatitis C Virus Infection

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Molecular Diagnosis and Therapy, 19: 213-220 (2015) IF:2.891

Background: Hepatocellular carcinoma (HCC) is the sixth most common cancer in the world. Having a very poor

prognosis, it currently ranks as the third most common cause of cancer-related deaths. MiRNAs are a set of small, single-stranded, non-coding RNA molecules that negatively regulate gene expression at the post-transcriptional level. Several miRNAs were found to be frequently deregulated in HCC. Objective To investigate whether miRNA-122, miRNA-199a, and miRNA-16 are altered in sera of hepatitis C virus (HCV)-induced HCC patients compared with chronic HCV patients without HCC, and to assess their diagnostic value to differentiate between HCC and chronic HCV in order to develop a non-invasive diagnostic and prognostic tool for HCC. Methods We analysed the expression of mature miRNA-122, miRNA-199a, and miRNA-16 in serum by a singleplex TaqMan two-step stem loop quantitative real-time reverse-transcription PCR (qRT-PCR) in 40 newly diagnosed HCC patients and 40 chronic HCV liver cirrhosis patients, as well as 20 apparently healthy individuals as a control group, using RNU48 as a normalisation control.

Results: Serum miR-16 was significantly lower in HCC than in HCV patients ($P = 0.033$). The serum level of miR-199a in chronic HCV patients was significantly lower than in healthy controls ($P = 0.001$). Receiver operating curve (ROC) analysis for serum miRNA-16 for discriminating HCC from HCV patients showed that at the cut-off value of 0.904, the sensitivity and specificity for this marker were 57.5 and 70 % respectively. The combination of serum miR-16 with serum alpha fetoprotein (AFP) resulted in improved sensitivity to 85% and increased diagnostic accuracy to 87.5 %. Serum miR-199a and miR-16 were significantly associated with several parameters of HCC such as tumour size and number.

Conclusion : The combination of serum miR-16 and serum AFP is a significant improvement on the current best practice of serum AFP for HCC in HCV positive patients. Serum miR-199a and miR-16 could be used as potential indicators of the progress of HCC.

Keywords: MiRNA-122; MiRNA-199a; and MiRNA-16 as potential biomarkers of HCC in chronic HCV patients. MiRNA-16 and 199a are associated with the progress of disease in HCC patients. The combination of serum miR-16 and serum AFP could be used as a diagnostic tool for HCC.

160. Study of Naïve and Memory Cells in A Cohort of Egyptian Chronic Granulomatous Disease Patients

Rabab El Hawary, Safa Meshaal, Diana Nagy, Ingy Fikry, Radwa Alkady, Dalia, Abd Elaziz, Nermeen Galal, Jeannette Boutros, Aisha Elmarsafy and Reem Jan Farid

Journal of Receptors And Signal Transduction, 35: 423-428 (2015) IF: 2.277

Context: Chronic granulomatous disease (CGD) is a primary immunodeficiency disorder caused by inherited defects in the NADPH oxidase complex which may be involved in important pathways that connect innate and adaptive immunity.

Objectives: Characterize the naïve and memory compartment of B and T lymphocytes in patients with CGD.

Methods: Twenty CGD patients and twenty healthy controls matched for age and sex were enrolled in this study. Flow cytometric assessment of the naïve and memory compartments of peripheral blood lymphocytes was done using cell surface markers CD45RO, CD45RA, CD27, CD3 and CD19. Results: There were 15 (79%) autosomal recessive CGD patients (8

females (53%) and 7 males (47%), 100% positive parental consanguinity) and four (21%) X-linked CGD patients. On comparing the 3 groups; AR CGD, X-linked CGD and controls, there was a positive statistical significant difference for the percentage and absolute count of CD19 + CD27+ memory B cell ($p=0.028$ and $p=0.047$ respectively), CD45RA cells) with p values of $p=0.000$ and 0.033 , respectively), the naïve compartment CD3 + CD45RA+ cells percentage and absolute counts ($p=0.005$, 0.01 respectively), CD3 + CD27 + cells percentage and absolute counts ($p=0.001$, 0.012 respectively), CD3 + CD45RA + CD27 + cells percentage and absolute counts ($p=0.015$, 0.005 , respectively). The significance was mainly attributed to the decrease in the X-linked group than control group.

Conclusion: There was an altered naïve and memory B profile in CGD patients, this may increase susceptibility of the patients to opportunistic infections and autoimmune disorders. T-cell alterations have to be interpreted cautiously especially in the presence of infections.

Keywords: CD27; CD45RA; CD45RO; Chronic granulomatous disease; memory cells; naïve cells.

161. Passenger Lymphocyte Syndrome in ABO and Rhesus D Minor Mismatched Liver and Kidney Transplantation: A Prospective Analysis

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Human Immunology, 76: 447-452 (2015) IF: 2.138

The increasing demand for solid organs has necessitated the use of ABO and Rhesus (Rh) D minor mismatched transplants. The passenger lymphocyte syndrome (PLS) occurs when donor lymphocytes produce antibodies that react with host red blood cell (RBC) antigens and result in hemolysis.

Our aim was to evaluate prospectively the role of PLS in post transplant anemia and hemolysis in ABO and RhD minor mismatched recipients of liver and kidney grafts and to study the association of PLS with donor lymphocyte microchimerism. We examined 11 liver and 10 kidney recipients at Day +15 for anemia, markers of hemolysis, direct antiglobulin test and eluates, and serum RBC antibodies.

Microchimerism was determined in peripheral blood lymphocytes by genotyping of simple sequence length polymorphisms encoding short tandem repeats. Immune hemolytic anemia and anti-recipient RBC antibodies were observed in 2 out of 11 liver (18.2%) and 2 out of 10 kidney (20%) transplants. RBC antibody specificity reflected the donor to recipient transplant, with anti-blood group B antibodies identified in 2 cases of O to B and 1 case of A to AB transplants while anti-D antibodies were detected in 1 case of RhD-negative to RhD-positive transplant. Donor microchimerism was found in only 1 patient. In conclusion, passenger lymphocyte mediated hemolysis is frequent in minor mismatched liver and kidney transplantation. Recognizing PLS as a potential cause of post transplant anemia may allow for early diagnosis and management to decrease the morbidity and mortality in some patients.

Keywords: Blood group; Hemolytic anemia; Microchimerism; Passenger lymphocyte syndrome; Transplantation.

162. Antioxidant Enzymes Gene Polymorphisms and Hepatocellular Carcinoma in Hepatitis C Virus-Infected Egyptian Patients

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Comparative Clinical Pathology, 24: 609-615 (2015)

Oxidative stress is an imbalance between production and elimination of reactive metabolites of oxygen and nitrogen, in favor of their production leading to potential damage. During oxidative stress, biologically important molecules and cells can be damaged, and this can be significant in the pathogenesis of many diseases. Reactive oxygen species (ROS) and ROS-induced cytokines are known to trigger the apoptosis of some hepatocytes and therefore contribute to inflammation, regeneration, fibrogenesis, and carcinogenesis. The enzymes generally considered to be the frontline defense against ROS are catalase (CAT), the mitochondrial manganese superoxide dismutase (MnSOD), and glutathione peroxidase (GPX). Our aim in this work is to assess the possible association of the antioxidant enzyme polymorphisms of CAT(c.C-262T, rs1001179), MnSOD (p.Val16Ala, rs4880), and GPXI (p.Pro 198 Leu, rs1050450) with the development of hepatocellular carcinoma (HCC) in a sample of hepatitis C virus (HCV)-infected Egyptian patients. Genetic polymorphisms were estimated in 40 HCC patients on top of HCV infection, 20 cirrhotic patients on top of HCV infection, and 20 healthy control individuals. Genetic polymorphisms of CAT (c.C-262T), MnSOD (p.Val16Ala), and GPXI (p.Pro 198 Leu) were studied using PCR-RFLP technique. With regard to CAT enzyme polymorphism, the frequency of the CC was significantly higher in HCC and cirrhosis patients compared to the healthy control group ($p = 0.000$). The frequency of the C allele in the three studied groups did not show statistically significant difference ($p = 0.081$). Patients bearing CT + TT genotypes had 0.107-fold and 0.205-fold reduced risk of development of liver cirrhosis and HCC [$p = 0.001$, 95 % CI (0.025–0.459); $p = 0.010$, 95 % CI (0.058–0.721)], respectively, compared to those bearing CC genotype. With regard to the MnSOD, the Ala/Ala genotype was significantly higher in the HCC group and cirrhosis group than in control individuals ($p = 0.001$). Similar results were found regarding the frequency of the Ala allele in the three studied groups ($p = 0.128$). Patients bearing Ala/Ala genotype that had 2.8-fold and 1.8-fold increased the risk of development of liver cirrhosis and HCC [$p = 0.001$, 95 % CI (1.753–4.530); $p = 0.001$, 95 % CI (1.415–2.471)], respectively, compared to those bearing Val/Val + Val/Ala genotypes. With regard to GPXI gene, the frequency of Pro/Leu genotype was significantly higher in the HCC and cirrhotic group compared to control group ($p = 0.000$). There was a significant increase in Leu allelic frequency in HCC and cirrhotic patients than in control group ($p = 0.006$). The presence of Leu allele increased the risk of development of liver cirrhosis and, consequently, HCC by 3.7-fold [$p = 0.018$, 95 % CI (1.205–11.78)] and 4.9-fold [$p = 0.001$, 95 % CI (1.742–13.86)], respectively, compared to Pro allele. The presence of CC of CAT (c.C-262T), Ala/Ala of MnSOD (p.Val16Ala) genes, and Leu allele of GPXI (Pro 198 Leu) gene is considered as risk factors for development of liver cirrhosis and HCC in the presence of HCV infection.

Keywords: CAT C-262T MnSOD Val16Ala GPXI Pro198 Leu Hepatocellular carcinoma; Gene polymorphism.

Dept. of Dermatology

163. Nail Dermoscopy Is A Helpful Tool in the Diagnosis of Onychomycosis: a Case Control Study

Khaled H. El-Hoshy, Rania M. Abdel Hay, Rasha H. El-Sherif, Mona Salah Eldin and Marwa F. Moussa

European Journal of Dermatology, 25(5): 494-495 (2015) IF: 1.990

The diagnosis of onychomycosis is moving from clinicopathologic tools, which are time-consuming and give false negative results in up to 35% of cases [1], into clinicoimaging diagnosis [2]. Distinctive dermoscopic features for onychomycosis have been reported [3-5]. Our aim was to confirm these distinctive features and to correlate their association with invasive diagnostic tools for onychomycosis. After approval of the Dermatology Research Ethical Committee of the Faculty of Medicine, Cairo University, this case control study included 40 patients with clinically diagnosed onychomycosis and 40 healthy controls. All subjects were subjected to clinical examination, dermoscopic examination using DermLite II PRO HR (3Gen, USA), digital photography and nail clipping for histopathological and microbiological examination (direct examination and culture). Statistical analysis of data was done using SPSS (statistical program for social science version 18). The chi-square test was used to compare qualitative variables. Both sensitivity and specificity for significant findings were calculated. A P value.

164. The Effects of Normobaric Oxygen Therapy on Patients with Periorbital Darkening: an Open, Uncontrolled Trial

Khaled H. El-Hoshy, Rania M. Abdel Hay, Rasha H. El-Sherif, Mona Salah Eldin and Marwa F. Moussa

Indian Journal Of Dermatology Venereology and Leprology, 81(4): 427-429 (2015) IF: 1.387

Sir, Periorbital darkening is a condition with a complex etiology, including dermal melanosis, post-inflammatory hemodynamic congestion and skin laxity. Therefore a combination treatment approach has been suggested.[1] We found no previous reports of the use of oxygen in the treatment of periorbital darkening. Thirty-five patients complaining of periorbital darkening, attending the dermatology outpatient clinic at Kasr Al ainy hospital, Cairo University, were included in this study. The study was approved by the institutional dermatology research ethical committee. Detailed personal and medical history of patients was obtained.

Dept. of Diagnostic Radiology

165. The Long-awaited Comparative Study on Thermal Ablation Technologies Is Finally Out!

Islam Ahmed Shehata

Annals of Surgery, 261(6): 165-166 (2015) IF: 8.327

High-intensity focused ultrasound (HIFU) is an innovative technology for thermal ablation. Although HIFU is currently

investigated for many potential clinical applications, oncology applications still attract the most attention of physicians.¹ Hepatocellular carcinoma (HCC) is one of the most serious tumors, being the fifth most common cancer worldwide and the third most common cause of cancer-related mortality.² Although surgery is the only curative treatment of HCC, only 10% to 20% of patients have resectable tumors.² As such, thermal ablation emerged as an influential therapy for unresectable or recurrent HCC.

Radio-frequency (RF) ablation is considered the mainstay of thermal ablation, owing to the fact that it has the richest accumulated clinical evidence of safety and efficacy. On the contrary, HIFU is relatively new in clinical practice. Although HIFU introduces the unique advantage of being the only noninvasive, nonionizing therapy so far, physicians are often cautious when evaluating results of emerging medical technologies. Countless articles have been published regarding RF and HIFU ablation of HCC.^{2,3} Unfortunately, especially for HIFU, there was no standardization of the selection criteria or studies design. As such, simple comparison of the clinical outcomes of such unmatched clinical studies yielded nonscientific and unfair conclusions.

166. Automated Tube Potential Selection as A Method of Dose Reduction for CT of the Neck: First Clinical Results

Boris Bodelle, Martin Beeres, Sebastian Scheithauer, Julian L. Wichmann, Nour-Eldin Abdelrehim Nour-Eldin, Thomas J. Vogl and Boris Schulz

American J. of Roentgenology, 204(5):1049-1054 (2015) IF: 2.731

Objective: The objective of our study was to investigate whether the use of a software-based automated tube potential selection (ATPS) CT neck protocol can result in radiation dose reduction as compared with a set 120-kV protocol without a statistically significant reduction in image quality.

Materials and Methods: Three hundred sixty-four patients (median age, 52 years) underwent CT of the neck. Group 1 (n = 320) underwent CT with ATPS with 80, 100, or 120 kV. Group 2 (n = 44) was examined with the standard CT protocol at 120 kV. Attenuation, image background noise, signal-to-noise ratio (SNR), dose-length product (DLP), volume CT dose index (CTDI_{vol}), body mass index (BMI [weight in kilograms divided by the square of height in meters]), and subjective image quality (5-point Likert scale, two readers in consensus) were analyzed.

Results: A tube potential of 100 kV was selected in 279 patients, 120 kV in 40 patients, and 80 kV in one patient of the ATPS group. A significant correlation was found for selected tube potential and BMI (80 kV, BMI = 20.4; 100 kV, mean BMI = 24.2; 120 kV, BMI = 28.6; $r = 0.28$, $p < 0.01$). The average radiation dose was significantly lower with ATPS activated than with the standard protocol (mean DLP, 259 vs 350 mGy × cm, respectively). Background noise did not differ between groups 1 and 2 at the levels of the mandibular angle and the upper mediastinum; however, attenuation and SNR increased significantly with lower tube potential settings. Subjective image quality did not suffer (mean image quality score: ATPS protocol vs standard protocol, 4.56 vs 4.61, respectively; $p > 0.05$) with good interobserver agreement ($\kappa > 0.56$).

Conclusion: ATPS allows significant dose savings for CT of the neck compared with a standard protocol that uses a fixed 120-kV

setting without a statistically significant reduction in image quality.

Keywords: Automated tube potential; Dose reduction; CT; Neck.

167. Hybrid Microsurgical Reconstruction and Percutaneous Endovascular Stent Placement for Management of Dissected Graft Hepatic Artery during Living Donor Liver Transplantation

Kareem Sallam, Mohamed Mostafa, Adel Elansary and Ayman Amin

Journal of Vascular and Interventional Radiology, 26 (6): 916-918 (2015) IF: 2.409

Hepatic artery reconstruction is a crucial step in living donor liver transplantation (LDLT) because arterial complications can lead to graft loss. Intraoperative dissection of the recipient artery is usually self-limiting and managed by anastomotic revision or using another recipient artery. However, dissection of the graft artery is more dramatic and requires repair. Endovascular interventions are useful in postoperative arterial complications and are employed in many centers before open surgery, but they have not been used in a combined intraoperative approach (1).

168. Fetal Brain Disruption Sequence Versus Fetal Brain Arrest: A Distinct Autosomal Recessive Developmental Brain Malformation Phenotype

Ghada M.H. Abdel-Salam, Mohamed S. Abdel-Hamid, Hamed A. El-Khayat, Ola M. Eid, Soliman Saba, Mona K. Farag, Sahar N. Saleem and Khaled R. Gaber

American Journal of Medical Genetics Part A, 167: 1089-1099 (2015) IF: 2.159

The term fetal brain disruption sequence (FBDS) was coined to describe a number of sporadic conditions caused by numerous external disruptive events presenting with variable imaging findings. However, rare familial occurrences have been reported. We describe five patients (two sib pairs and one sporadic) with congenital severe microcephaly, seizures, and profound intellectual disability. Brain magnetic resonance imaging (MRI) revealed unique and uniform picture of underdeveloped cerebral hemispheres with increased extraxial CSF, abnormal gyral pattern (polymicrogyria-like lesions in two sibs and lissencephaly in the others), loss of white matter, dysplastic ventricles, hypogenesis of corpus callosum, and hypoplasia of the brainstem, but hypoplastic cerebellum in one. Fetal magnetic resonance imaging (FMRI) of two patients showed the same developmental brain malformations in utero. These imaging findings are in accordance with arrested brain development rather than disruption. Molecular analysis excluded mutations in potentially related genes such as NDE1, MKL2, OCLN, and JAM3. These unique clinical and imaging findings were described before among familial reports with FBDS. However, our patients represent a recognizable phenotype of developmental brain malformations, that is, apparently distinguishable from either familial microhydranencephaly or microlissencephaly that were collectively termed FBDS. Thus, the use of the umbrella term FBDS is no longer helpful. Accordingly, we propose the term fetal brain arrest to distinguish them from other familial patients diagnosed as FBDS. The presence of five affected patients from three unrelated consanguineous families suggests an autosomal-

recessive mode of inheritance. The spectrum of fetal brain disruption sequence is reviewed.

Keywords: Lethal microcephaly; Fetal magnetic resonance Imaging; Ndel; Fetal brain disruption sequence; Fetal brain.

169. Automated Tube Voltage Adaptation in Combination with Advanced Modeled Iterative Reconstruction in Thoracoabdominal Third-Generation 192-slice Dual-source Computed Tomography: Effects on Image Quality and Radiation Dose

Jan-Erik Scholtz, Julian L. Wichmann, Kristina H€users, Martin Beeres, Nour-Eldin Abdelrehim Nour-Eldin, Claudia Frellesen, Thomas J. Vogl and Thomas Lehnert

Academic Radiology, 22(9): 1081-1087 (2015) IF: 1.751

Rationale and objectives: To evaluate image quality and radiation exposure of portal venous-phase thoracoabdominal third-generation 192-slice dual-source computed tomography (DSCT) with automated tube voltage adaptation (TVA) in combination with advanced modeled iterative reconstruction (ADMIRE).

Materials and methods: Fifty-one patients underwent oncologic portal venous-phase thoracoabdominal follow-up CT twice within 7 months. The initial examination was performed on second-generation 128-slice DSCT with fixed tube voltage of 120 kV in combination with filtered back projection reconstruction. The second examination was performed on a third-generation 192-slice DSCT using automated TVA in combination with ADMIRE. Attenuation and image noise of liver, spleen, renal cortex, aorta, vena cava inferior, portal vein, psoas muscle, and perinephric fat were measured. Signal-to-noise ratio (SNR) and contrast-to-noise ratio (CNR) were calculated. Radiation dose was assessed as size-specific dose estimates (SSDE). (Subjective image quality was assessed by two observers using five-point Likert scales. Interobserver agreement was calculated using intraclass correlation coefficients (ICC).

Results: Automated TVA set tube voltage to 90 kV (n = 8), 100 kV (n = 31), 110 kV (n = 11), or 120 kV (n = 1). Average SSDE was decreased by 34.9% using 192-slice DSCT compared to 128-slice 120-kV DSCT (7.8 ± 2.4 vs. 12.1 ± 3.2 mGy; $P < .001$). Image noise was substantially lower; SNR and CNR were significantly increased in 192-slice DSCT compared to 128-slice DSCT (all $P < .005$). Image quality was voted excellent for both acquisition techniques (5.00 vs. 4.93 ; $P = .083$).

Conclusions: Automated TVA in combination with ADMIRE on third-generation 192-slice DSCT in portal venous-phase thoracoabdominal CT provides excellent image quality with reduced image noise and increased SNR and CNR, whereas average radiation dose is reduced by 34.9% compared to 128-slice DSCT.

Keywords: Automated tube; Voltage adaptation; Iterative reconstruction; Dual-Source; Ct; Image quality; Radiation dose.

170. Ablation Therapy of Hepatocellular Carcinoma: A Comparative Study Between Radiofrequency and Microwave Ablation

Thomas J. Vogl, Parviz Farshid, Nagy N. N. Naguib, Stefan Zangos, Boris Bodelle, Jijo Paul, Emmanuel. Mbalisike, Martin Beeres and Nour-Eldin A. Nour-Eldin

Abdominal Imaging, 40: 1829-1837 (2015) IF: 1.63

Purpose: The aim of the study is to retrospectively evaluate and compare the therapeutic response of Radiofrequency (RF) and Microwave (MW) ablation therapy of hepatocellular carcinoma (HCC).

Materials and methods: 53 consecutive patients (42 males, 11 females; mean age 59 years, range: 40-68, SD: 4.2) underwent CT-guided percutaneous RF and MW ablation of 68 HCC liver lesions. The morphologic tumor response (number, location and size) was evaluated by magnetic resonance imaging. The follow-up protocol was 24 h post-ablation then within 3 monthly intervals post-ablation in the first year and 6 monthly intervals thereafter.

Results: Complete therapeutic response was noted in 84.4% (27/32) of lesions treated with RFA and in 88.9% (32/36) of lesions treated with MW ablation ($P = 0.6$). Complete response was achieved in all lesions ≤ 2.0 cm in diameter in both groups. There was no significant difference in rates of residual foci of HCC lesions between RF and MW ablation groups ($P = 0.15$, Log-rank test). Recurrence rate for 3, 6, 9, and 12 months in patients with HCC who underwent RF ablation compared with MW ablation were 6.3%, 3.1%, 3.1% versus 0%, 5.6%, 2.8%, and 2.8%. Progression-Free Survival rates for treated patients with RF ablation of 1, 2, and 3 years were 96.9%, 93.8%, and 90.6% and treated with MW ablation therapy were 97.2%, 94.5%, and 91.7, respectively ($P = 0.98$).

Conclusion: In conclusion, RF and MW ablation therapy showed no significant difference in the treatment of HCC regarding the complete response, rates of residual foci of untreated disease, and recurrence rate.

Keywords: Microwave; Radiofrequency; Ablation; Hepatocellular carcinoma.

171. CT Chest and Gantry Rotation Time: Does the Rotation Time Influence Image Quality?

Martin Beeres, Julian L. Wichmann, Jijo Paul, Emmanuel Mbalisike, Mohamed Elsabaie, Thomas J. Vogl and Nour-Eldin A. Nour-Eldin

Acta Radiologica, 56(8): 950-954 (2015) IF: 1.603

Background: Computed tomography (CT) gantry rotation time is one factor influencing image quality. Until now, there has been no report investigating the influence of gantry rotation time on chest CT image quality. **PURPOSE:** To investigate the influence of faster gantry rotation time on image quality and subjective and objective image parameters in chest CT imaging.

Material and Methods: Chest CT scans from 160 patients were examined in this study. All scans were performed using a single-source mode (collimation, 128×0.6 mm; pitch, 1.2) on a dual-source CT scanner. Only gantry rotation time was modified, while other CT parameters were kept stable for each scan (120 kV/110 reference mAs). Patients were divided into four groups based on rotation time: group 1, 1 s/rotation (rot); group 2, 0.5 s/rot; group 3, 0.33 s/rot; group 4, 0.28 s/rot. Two blinded radiologists subjectively compared CT image quality, noise, and artifacts, as well as radiation exposure, from all groups. For objective comparison, all image datasets were analyzed by a radiologist with 5 years of experience concerning objective measurements as well as signal-to-noise ratio (SNR).

Results: We found that faster gantry rotation times (0.28 s/rot and 0.33 s/rot) resulted in more streak artifacts, image noise, and

decreased image quality. However, there was no significant difference in radiation exposure between faster and slower rotation times ($P > 0.7$).

Conclusion: Faster CT gantry rotation reduces scan time and motion artifacts. However, accelerating rotation time increases image noise and streak artifacts. Therefore, a slower CT gantry rotation speed is still recommended for higher image quality in some cases.

Keywords: CT chest; Gantry rotation time; Image quality.

172. Subcutaneous Packing in Royal Egyptian Mummies Dated from 18Th to 20Th Dynasties

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Journal of Computer Assisted Tomography, 39: 301-306 (2015)
IF: 1.411

Objective: It has been widely disseminated in the literature that subcutaneous packing, as part of mummification, was not usually done until the 21st dynasty. We aimed to study by computed tomography (CT) if subcutaneous packing was part of mummification of royal Egyptians dated to 18th to 20th dynasties.

Materials and Methods: We analyzed the 2- and 3-dimensional CT images of 13 royal mummies dated to circa 1550 to 1153 bc for presence of subcutaneous embalming materials. Among the studied mummies were Amenhotep III, Tutankhamun, Seti I, and Ramesses II. We reported the CT characters of any detected subcutaneous embalming materials and noted their impact on the morphology of the involved body part. We correlated the CT findings with the archeological literature. Results: Computed tomographic images showed subcutaneous packing in 12 (92.3%) mummies; whereas the mummy that was previously known as "Thutmose I" showed no such evidence. Subcutaneous packing involved the faces ($n = 11$), necks ($n = 4$), torsos ($n = 5$), and/or extremities ($n = 4$) of the mummies. Subcutaneous filling materials showed variation in homogeneity and CT densities and they were likely composed of resin, bits of linen with resin, or other substances. Subcutaneous packing procedure succeeded in providing uniform full contour of the involved body regions without causing significant tissue damages.

Conclusions: Subcutaneous packing procedure was used as part of mummification of royal Ancient Egyptians dated to 18th to 20th dynasties earlier than what was believed in archaeology. The Ancient Egyptian embalmers must have been skilled in dissection and possessed surgical tools that enabled them to perform this fine procedure.

Keywords: Ct; Mummification; Egypt.

173. First Clinical Evaluation of High-Pitch Dual-Source Computed Tomographic Angiography Comparing Automated Tube Potential Selection with Automated Tube Current Modulation

Martin Beeres, MD, Kimberly Williams, Ralf W. Bauer, Jan Scholtz, Moritz Kaup, Tatjana Gruber-Rouh, Clara Lee, Julian L. Wichmann, Claudia Frellesen, Nour-Eldin A. Nour-Eldin, Thomas J. Vogl, Josef Matthias Kerl and Boris Bodelle

Journal of Computer Assisted Tomography, 39(4): 624-628 (2015) IF: 1.411

Objective: To investigate and compare the use of automated tube potential selection (ATPS) with automated tube current modulation (ATCM) in high-pitch dual-source computed tomographic angiography (CTA) for imaging the whole aorta without electrocardiogram synchronization.

Methods: Two groups of 60 patients underwent CTA on a dual-source computed tomographic device in high-pitch mode: ATCM (with 100-kV fixed tube potential) was used in group 1 and ATPS (with the same image quality options) in group 2. For the evaluation of radiation exposure, CT dose index and dose-length product were analyzed. Contrast and image quality were assessed by 2 independent observers.

Results: The ATPS group received a higher radiation dose than the ATCM group ($P < 0.001$) because in 80% of patients, the software switched to use of a 120-kV tube potential. In all cases, images of the aorta were of sufficient quality.

Conclusions: High-pitch dual-source CTA of the aorta using ATPS is feasible in clinical routine, but is associated with higher radiation exposure than the ATCM protocol. This finding contradicts previously evaluations of ATPS based on single-source techniques.

Keywords: High-Pitch; Dual-Source Cta; Automated tube potential selection; Automated tube current modulation.

174. Pre-, Intra-and Post-operative Imaging of Cochlear Implants

T. J. Vogl, A. Tawfik, A. Emam, N. N.N. Naguib, A. Nour-Eldin, I. Burckl, T. Stöver

Rofo, 187(11): 980-989 (2015) IF: 1.402

The purpose of this review is to present essential imaging aspects in patients who are candidates for a possible cochlear implant as well as in postsurgical follow-up. Imaging plays a major role in providing information on preinterventional topography, variations and possible infections. Preoperative imaging using DVT, CT, MRI or CT and MRI together is essential for candidate selection, planning of surgical approach and exclusion of contraindications like the complete absence of the cochlea or cochlear nerve, or infection. Relative contraindications are variations of the cochlea and vestibulum. Intraoperative imaging can be performed by fluoroscopy, mobile radiography or DVT. Postoperative imaging is regularly performed by conventional X-ray, DVT, or CT. In summary, radiological imaging has its essential role in the pre- and post-interventional period for patients who are candidates for cochlear implants.

Keywords: Ear; MR imaging; CT; Anatomy; Schwannoma.

175. Diffusion Tensor Magnetic Resonance Imaging in Assessment of Prognostic Outcome of Stroke Patients

Shaima Fatooh Elkholy, Mohsen Elsayed Khalil, Ayman Abd Elhamid Elbasmi, Bahaa Eldin Mahmoud Hussein Mahmoud and Mohammad Edrees

The Egyptian Journal of Radiology and Nuclear Medicine, 46, 13, 2015: 707-713 (2015)

Purpose : The purpose of this study was to assess the utility of diffusion tensor MR imaging as a prognostic imaging technique

to detect the clinical outcome in patients presenting with cerebrovascular stroke.

Subjects and methods: The study was conducted on 50 cases presenting with different types of stroke between May 2012 and November 2013. We assessed our patients according to the size of stroke, NIHSS score, degree of reduction of FA and pattern of WM tract affection. Patients presenting with acute ischemic stroke were followed up clinically after 3 months for residual neurological deficits.

Results: We found good association between tractography findings and clinical score at admission as well as the clinical recovery on the follow-up after 3 months. Patients with disruption of white matter tracts had residual deficits on follow-up, whereas patients with displaced and preserved tracts had near complete neurological recovery.

Conclusion: DTI can visualize the changes in the integrity and orientation of the white matter tracts that are affected by cerebrovascular lesions which cannot be detected by conventional MRI. By MR tractography, we can detect the pattern of white matter tract affection that offers a potential tool for correlating the clinical outcome with the imaging findings.

Keywords: Mri; Diffusion tensor; Tractography; Stroke; Prognosis.

Dept. of Endemic

176. Daclatasvir Plus Peginterferon Alfa and Ribavirin for Treatment-naïve Chronic Hepatitis C Genotype 1 or 4 Infection: A Randomised Study

Christophe Hézode, Gideon M Hirschfield, Wayne Ghesquiere, William Sievert, Maribel Rodriguez-Torres, Stephen D Shafran, Paul J Thuluvath, Harvey A Tatum, Imam Waked, Gamal Esmat, Eric J Lawitz, Vinod K Rustgi, Stanislas Pol, Nina Weis, Paul J Pockros, Marc Bourlière, Lawrence Serfaty, John M Vierling, Michael W Fried, Ola Weiland, Maurizia R Brunetto, Gregory T Everson, Stefan Zeuzem, Paul Y Kwo, Mark Sulkowski, Norbert Bräu, Dennis Hernandez, Fiona McPhee, Megan Wind-Rotolo, Zhaohui Liu, Stephanie Noviello, Eric A Hughes, Philip D Yin and Steven Schnittman

Gut, 64:948–956 (2015) IF: 14.660

Objective To evaluate the safety and efficacy of daclatasvir, an HCV NS5A inhibitor with pangenotypic activity, administered with peginterferon-alfa-2a/ribavirin.

Design In this Phase 2b double-blind, placebocontrolled study, treatment-naïve adults with HCV genotype 1 (N=365) or 4 (N=30) infection were randomly assigned (2:2:1) to daclatasvir 20 mg or 60 mg, or placebo once daily plus weekly peginterferon-alfa-2a and twice-daily ribavirin. Daclatasvir recipients achieving protocol-defined response (PDR; HCV RNA < lower limit of quantitation at Week 4 and undetectable at Week 10) were rerandomised at Week 12 to continue daclatasvir/peginterferon-alfa-2a/ribavirin for 24 weeks total duration or to placebo/peginterferon-alfa-2a/ribavirin for another 12 weeks.

Patients without PDR and placebo patients continued peginterferon-alfa/ribavirin through Week 48. Primary efficacy endpoints were undetectable HCV-RNA at Weeks 4 and 12 (extended rapid virologic response, eRVR) and at 24 weeks post-treatment (sustained virologic response, SVR24) among genotype 1-infected patients.

Results Overall, eRVR was achieved by 54.4% (80/147) of genotype 1-infected patients receiving.

daclatasvir 20 mg, 54.1% (79/146) receiving 60 mg versus 13.9% (10/72) receiving placebo. SVR24 was achieved among 87 (59.2%), 87 (59.6%), and 27 (37.5%) patients in these groups, respectively. Higher proportions of genotype 4-infected patients receiving daclatasvir 20 mg (66.7%; 8/12) or 60 mg (100.0%; 12/12) achieved SVR24 versus placebo (50.0%; 3/6).

A majority of daclatasvir-treated patients achieved PDR and experienced less virologic failure and higher SVR24 rates with a shortened 24-week treatment duration. Adverse events occurred with similar frequency across all treatment groups.

Conclusions The combination of daclatasvir/peginterferon-alfa/ribavirin was generally well tolerated and achieved higher SVR24 rates compared with placebo/peginterferon-alfa/ribavirin among patients infected with HCV genotype 1 or 4.

177. GPR84 and TREM-1 Signaling Contribute to the Pathogenesis of Reflux Esophagitis

Heba Abdel-Aziz, Mathias Schneider, Winfried Neuhuber, Abdel Meguid Kassem, Saleem Khailah, Jürgen Müller, Hadeel Gamal Eldeen, Ahmed Khairy, Mohamed T Khayyal, Anastasiia Shcherbakova, Thomas Efferth and Gudrun Ulrich-merzenich

Molecular Medicine, 21: 1011-1024 (2015) IF: 4.508

Gastro-esophageal reflux disease (GERD) is one of the most common disorders in gastroenterology. Patients present with or without increased acid exposure indicating a nonuniform etiology. Thus, the common treatment with proton pump inhibitors (PPIs) fails to control symptoms in up to 40% of patients. To further elucidate the pathophysiology of the condition and explore new treatment targets, transcriptomics, proteomics and histological methods were applied to a surgically induced subchronic reflux esophagitis model in Wistar rats after treatment with either omeprazole (PPI) or STW5, a herbal preparation shown to ameliorate esophagitis without affecting refluxate pH.

The normal human esophageal squamous cell line HET-1A and human endoscopic biopsies were used to confirm our findings to the G-protein-coupled receptor (GPR) 84 in human tissue. Both treatments reduced reflux-induced macroscopic and microscopic lesions of the esophagi as well as known proinflammatory cytokines.

Proteomic and transcriptomic analyses identified CINC1–3, MIP-1/3a, MIG, RANTES and interleukin (IL)-1 β as prominent mediators in GERD. Most regulated cyto-/chemokines are linked to the TREM-1 signaling pathway. The fatty acid receptor GPR84 was upregulated in esophagitis but significantly decreased in treated groups, a finding supported by Western blot and immunohistochemistry in both rat tissue and HET-1A cells. GPR84 was also found to be significantly upregulated in patients with grade B reflux esophagitis.

The expression of GPR84 in esophageal tissue and its potential involvement in GERD are reported for the first time. IL-8 (CINC1–3) and the TREM-1 signaling pathway are proposed, besides GPR84, to play an important role in the pathogenesis of GERD.org

Keywords: GERD; GPR84.

178. Mir-194 is a Hepatocyte Gate Keeper Hindering HCV Entry Through Targeting CD81 Receptor

Radwa Yehia Mekky, Nada Magdy El-Ekiaby, Mohammed Tarif Hamza, Noha Mousaad Elemam, Mohammed EL-sayed, Gamal Esmat and Ahmed Ihab Abdelaziz

Journal of Infection, (70) 78-87 (2015) IF: 4.441

Objective: The tetraspanin CD81 is one of the main receptors involved in hepatitis C virus entry. Herein, we aimed to explore the role of microRNAs in regulating CD81 receptor expression and function.

Patients and Methods: Bioinformatics analysis was carried out to select potential microRNAs that binds CD81 3'untranslated region. Liver biopsies taken from 28 HCV genotype- 4 patients and 10 healthy donors were screened. Naïve, JFH1 and ED43/JFH1- infected- Huh7 cells were transfected with mimics and inhibitors followed by analyzing CD81 protein and mRNA expression.

This was done using flow cytometry and Q-RT PCR, respectively. HCV entry into Huh7 cells was investigated post-transfection. Binding confirmation was done using luciferase reporter vector harboring wild/mutant target sites of microRNA. The impact of Epigallocatechingallate on modulating microRNA/CD81 expression was assessed.

179. Association of Myxovirus Resistance Gene Promoter Polymorphism with Response to Combined Interferon Treatment and Progression of Liver Disease in Chronic HCV Egyptian Patients

Bader El Din NG, Salum GM, Anany MA, Ibrahim MK, Dawood RM, Zayed N, El Abd YS, El-Shenawy R and El Awady MK

Journal of Interferon and Cytokine Research, 35(8): 641-648 (2015) IF: 2

To evaluate the frequency of single-nucleotide polymorphism at the -88 myxovirus resistance (MxA) gene promoter region in relation to the status of hepatitis C virus (HCV) progression and response to combined interferon (IFN) in chronic HCV Egyptian patients. One hundred ten subjects were enrolled in the study; 60 HCV genotype 4-infected patients who underwent combined IFN therapy and 50 healthy individuals. All subjects were genotyped for -88 MxA polymorphism by the restriction fragment length polymorphism technique. There was an increasing trend of response to combined IFN treatment as 34.9% of GG, 64.3% of GT, and 66.7% of TT genotypes were sustained responders ($P=0.05$). The T allele was significantly affecting the response rate more than G allele ($P=0.032$). Moreover, the hepatic fibrosis score and hepatitis activity were higher in GG genotypes compared with the GT and TT genotypes. The multivariate analysis showed that the MxA GG genotype was an independent factor increasing the no response to IFN therapy ($P=0.04$, odds ratio [OR] 3.822, 95% confidence interval [CI] 1.056-11.092), also MxA G allele ($P=0.0372$, OR 2.905, 95% CI 1.066-7.919). MxA -88 polymorphism might be a potential biomarker to predict response to IFN and disease progression in chronic HCV-infected patients.

Keywords: HCV; MxA; IFN.

180. A pleiotropic effect of the single clustered hepatic metastamiRs miR-96-5p and miR-182-5p on insulin-like growth factor II, insulin-like growth factor-1 receptor and insulin-like growth factor-binding protein-3 in hepatocellular carcinoma

Reem Amr Assal, Hend Mohamed El Tayebi, Karim Adel Hosny, Gamal Esmat and Ahmed Ihab Abdelaziz

Molecular Medicine Reports, 12: 645-650 (2015) IF: 1.554

MicroRNAs (miRs) have a major role in the pathogenesis of hepatocellular carcinoma (HCC). As the insulin-like growth factor (IGF) axis is a highly tumorigenic pathway in HCC, the present study attempted to target it with miRs. Potential targeting of crucial members of the IGF axis by miRNAs at the 3'-untranslated region (3'-UTR) was predicted using bioinformatic tools, such as microrna.org, Diana lab and Targetscan, while 5'-UTR targeting was predicted using bibiserv software. Expression profiling of obtained miRNAs was performed using quantitative polymerase chain reaction (qPCR) in 22 non-metastatic HCC biopsy samples and 10 healthy tissues. To investigate the impact of miRNAs on their potential downstream targets, transfection of miRNAs was performed in HuH-7 cells and the targets' expression was quantified using qPCR. Transcripts of insulin-like growth factor-1 receptor (IGF-1R), insulin-like growth factor binding protein-3 (IGFBP-3) and IGF-II were found to be potentially targeted at the 5'-UTR and 3'-UTR regions by the single clustered hepatic metastamiRs miR-96-5p and miR-182-5p. The two miRNAs showed a similar expression pattern in HCC tissues compared to those in healthy tissues. Forced expression of miR-96-5p and miR-182-5p in the HCC cell line HuH-7 had inducing effects on IGFBP-3 and IGF-II transcripts. Of note, the two miRs had differential effects on IGF-1R, where miR-96-5p induced IGF-1R mRNA expression and miR-182-5p inhibited its expression. The present study revealed the pleiotropic impact of the single clustered hepatic metastamiRs miR-96-5p and miR-182-5p on IGF-1R, and an inducing effect on IGF-II and IGFBP-3 in hepatocellular carcinoma.

Keywords: microRNA-96; microRNA-182; insulin-like growth factor-1R; insulin-like growth factor-II; insulin-like growth factor binding protein 3.

181. Hepatitis C Infection in Egyptian Psoriatic Patients: Prevalence and Correlation with Severity of Disease

Randa Youssef, Ola Abu-Zeid, Khadiga Sayed, Shaimaa Osman, Dalia Omran, Arwa El Shafei and Doaa Ghaith

Iran J Public Health, 44, (9): 1294-1295, (2015) IF: 0.55

Egypt is one of the highest hepatitis C virus (HCV) prevalent areas worldwide (10- 20% of the general population) (1) and some investigators have reported an association between psoriasis and HCV infection (2). Based on these facts, we set to estimate the prevalence of HCV infection and its genetic diversity among Egyptian psoriatic patients in comparison to the normal population.

One hundred psoriatic patients and 200 healthy volunteers were screened for HCV by detection of anti HCV antibodies using enzyme-linked immunosorbent assay (ELISA); further real time-

polymerase chain reaction analysis was performed for HCV seropositive patients for detection of HCV Genotype. The prevalence of HCV infection was significantly higher among psoriatic patients compared to controls (19% vs 8.5% respectively) ($P < 0.05$). HCV seropositive psoriatic patients had exhibited more severe degrees of psoriasis, as measured by PASI score, with significantly longer duration of systemic treatment for psoriasis ($P < 0.05$), in addition to significantly higher liver enzyme levels than the seronegative psoriatic patients ($P < 0.05$). HCV genotype IV was the commonest genotype in both groups.

182. Relation of ALT and AST levels to the histopathological changes in liver biopsies of patients with chronic hepatitis C genotype 4

Hany Khattab, Ahmed Fouad, Maya Hamza, Mohammad A. Mohey, Wafaa El-Akel, Hossam Ghoneim, Amr Abul-Fotouh and Gamal Esmat

Iran J Public Health, 44, (9): 1294-1295 (2015)

Background and study aims: Worldwide, Egypt has a high prevalence of adult hepatitis C virus (HCV) infection. Serum alanine aminotransferase (ALT) activity is most commonly measured to assess hepatic disease. The revision of the definition of the normal limits for the ALT level is advisable. The aim of this work was to compare the histopathological changes in the liver tissue biopsies of HCV-infected patients, clinically presenting with ALT levels below normal, based on the conventional, previously used upper limit of normal (ULN) of ALT (40 U/L for men and 30 U/L for women) with the proposed new ULN (30 U/L for men, and 19 U/L for women).

Patients and methods: This is a retrospective cross-sectional study. A total of 668 cases of chronic hepatitis C genotype 4 were included. Patients were classified according to grades of histological activity and fibrosis stages (by the Metavir scoring system). They were also classified into normal and high groups according to the old and new cutoffs of both aspartate transaminase (AST) and ALT levels.

Results: The results of our study showed that the serum AST level in our study showed a better correlation with the histopathological changes in liver biopsy rather than ALT, especially when using the old cutoff of the ULN for AST. The serum ALT level in our study (both the old and the new cutoffs) did not show a significant correlation with the histopathological status in the liver biopsies of our patients.

Conclusion: This study concluded that the old cutoff of the ULN AST is a better predictor of fibrosis.

Keywords: HCV; Genotype 4; ALT; AST.

Dept. of Forensic & Toxicology

183. Sesbania Sesban L. Biomass as A Novel Adsorbent for Removal of Pb(II) Ions from Aqueous Solution: Non-Linear and Error Analysis

Ali Hashem and Sayed M. Badawy

Green Process and Synthesis, 4: 179-190 (2015) IF: 1.125

In the present study, we reported the feasibility of the *Sesbania sesban* L. as a biosorbent to remove Pb (II) from aqueous solutions. The ability of *S. sesban* L. to adsorb Pb(II) was investigated by using batch adsorption procedure. Such effects

as pH, contact time, adsorbate concentration, and biosorbent dosage on the adsorption capacity were studied. The experimental data were analyzed using various adsorption kinetic models, namely, pseudo-first-order model, the pseudo-second-order model, Batacharia-Venkobachar, the Elovich equation, the intraparticle diffusion model, and Bangham equation. Results show that the pseudo-second-order equation provides the best correlation for the biosorption process. To determine the best fit isotherm, the experimental equilibrium data were analyzed using two-parameter (Langmuir, Freundlich, Dubinin-Radushkevich, and Tempkin) and three-parameter isotherms (Redlich-Peterson, Sips, Khan, and Toth). The examination of error analysis methods showed that the Langmuir isotherm model and Redlich-Peterson models provide the best fit for experimental data than other isotherms. *Sesbania sesban* L. is found to be inexpensive and effective adsorbent for removal of Pb(II) from aqueous solutions.

Keywords: Contaminated water; Error analysis; Isotherm models; Pb(II) adsorption; *Sesbania sesban* L.

Dept. of Internal Medicine

184. Rheumatoid Arthritis in the Middle East and Africa: Are we Any Closer to Optimising its Management?

Jamal Al Saleh, Gaafar Ragab, Peter Nash, Hussein Halabi, Ahmed Laatar, Ali M. El-Sayed Yousef, Hamdi Ehsouna and Mohammed Hammoudeh

Clinical Rheumatology, 34: 1-8 (2015) IF: 1.696

A recent editorial considered the management of rheumatoid arthritis (RA) in the Middle East and Africa [1]. Following review of the limited available evidence in the literature specifically that is from this region, it was suggested that management of RA is suboptimal for a variety of reasons [1]. The editorial authors met to determine whether the European League Against Rheumatism (EULAR) consensus recommendations published in 2010 [2] were applicable and appropriate for implementation in the MENA region and South Africa [1]. The group made recommendations on next steps to improve the management of RA in this region, including collection of epidemiological data to elucidate better the prevalence, severity and burden of RA in this region; educational initiatives to raise awareness of the disease and dispel misconceptions among health care professionals (HCPs) and patients; development of regional guidelines to increase implementation of an evidence-based approach and improve outcomes; and facilitation of access to treatments in line with the recommendations [1]. In addition, locally relevant issues not commonly seen in Europe such as high rates of hepatitis B and C, tuberculosis (TB) and parasitic infections as well as access and monitoring difficulties should be considered.

Keywords: Rheumatoid arthritis in the middle East and Africa: Are We Any.

185. Clinical Significance of Serum N-Terminal Pro C-Type Natriuretic Peptide in Hepatitis C-Related Chronic Liver Diseases

Nadia A. Abdelkader, Mona Zaki, Wessam E. Saad and Gehan Hamdy and Dina Sabry

J. of Egyptian Society of Parasitology, 45 (2):219-226 (2015)

To evaluate the clinical utility of serum levels of N- terminal pro C- type natriuretic peptide (NT-pro CNP) in patients with hepatitis C related chronic liver disease (CLD), in prospective to disease complications and progression. This study included 66 hepatitis C- related CLD patients with and without ascites and 15 healthy individuals (control group). Serum NT-pro CNP was measured by ELISA. A stepwise progressive increase in NT-pro CNP levels was recorded through controls, patients without ascites and patients with ascites ($p < 0.05$). In addition, patients with hematemesis or encephalopathy had more than its double values than those without ($p < 0.01$). Moreover, a significant difference was observed in the marker levels among esophageal varices stages 1, 2, 3 ($H=13.679$, $p=0.001$), with highest levels in grade 3. NT-pro CNP correlated positively with alpha fetoprotein ($r_s = 0.455$, $p=0.008$) with no significant correlation neither with MELD nor Child scores ($p > 0.05$). ROC curve analysis revealed the overall performance of the marker in discriminating CLD patients collectively from controls, the optimum cut-off level was 85 ng/L (AUC= 0. 803, sensitivity 84.8%& specificity 53.3%). An increased level of NT-pro CNP is a promising non-invasive marker of hepatitis C related CLD complications and disease progression.

Keywords: Natriuretic peptide; NT-Pro CNP; Chronic liver disease; Hepatitis C.

Dept. of Medical Microbiology and Immunology

186. Evaluation of the Herpesselect Express Rapid Test in the Detection of Herpes Simplex Virus Type 2 Antibodies in Patients with Genital Ulcer Disease

Hani Al-Shobaili, Khaled M. Hassanein, Marwa Salah Mostafa and Ali Saleh Al Duways

Journal of Clinical Laboratory Analysis, 29: 43-46 (2015)
IF: 1.038

Background: A rapid point-of-care test with high sensitivity and specificity is required in order to fulfill the need for early detection and screening of Herpes simplex virus type 2 (HSV-2) infection among patients with genital ulcer disease (GUD), for better management and control of virus transmission. Methods: The goal of this study is to evaluate the performance of the commercially available HerpeSelect Express rapid test in comparison with three ELISA assays: HerpeSelect ELISA, Kalon HSV-2 glycoprotein G2 assay, and monoclonal antibody blocking enzyme immunoassay, which was used as the gold standard for the detection of HSV-2 antibodies.

Results: This study showed high sensitivity (ranging from 82.6 to 100%) and specificity (100%) of the HerpeSelect Express rapid test when compared to the three ELISA assays. The agreement between the HerpeSelect Express rapid test with the three ELISAs ranged from 93.3 to 100%.

Conclusion: The HerpeSelect Express rapid test has adequate sensitivity and specificity for confirming HSV-2 infection in patients with GUD, indicating its suitability for epidemiological studies.

Keywords: Genital ulcer; Herpes simplex virus 2; Herpesselect elisa; Hsv-2 antibodies; Monoclonal antibody blocking Eia.

Dept. of Neurology

187. Roadmap for Improved Stroke Care: Implications for Global Stroke Guidelines and Action Plan

Foad Abd-Allah and Mohammad Wasay

International Journal of Stroke, 10(5):E52 (2015) IF: 3.833

We have read with great interest the 'World Stroke Organization Global Stroke Services Guidelines and Action Plan' (1). These guidelines are definitely an important landmark toward action planning related to improved stroke care across continents and regions of the world. It is a framework with crosscutting themes and interventions that are applicable to most of the world population. This document not only provides an assessment tool for countries and regions to grade stroke care in respective areas but also helps in setting targets. It is long needed and covers most of stroke-related interventions.

Methodology is limited by scarcity of publications from minimal-resource countries. The most important aspect is the division of service availability in three levels based on stroke awareness and care. This may not be applicable to most regions of the world because of inequity and huge variations in medical care in developing countries. For example, a recent report from Egypt, the most populated nation in the Middle East and second most populous in Africa, indicates thrombolysis rate is less than 1% (2). In Pakistan, which is a transitional and developing country like Egypt, there are few stroke care centers with interventional facilities while there are areas with no access for health care services for about three hundred miles (3,4). Despite these limitations, this model still provides a useful checklist to assess level of stroke care at a particular place.

Dept. of NeuroSurgery

188. Surgical Management of Midline Anterior Skull Base Meningiomas: Experience of 30 Cases

Mohamed I Refaat, Ehab M Elissa and Mohamed H A

Turkish Neurosurgery, 25: 432-437 (2015) IF: 0.576

Aim: Midline anterior skull base meningiomas include olfactory groove meningiomas (OGMs), Tuberculum Sellae meningiomas (TSMs), and planum sphenoidale meningiomas (PSMs). The main surgical challenge in treating these lesions is to excise the tumor totally without causing mortality or morbidity. Studying the clinical patterns and the surgical outcomes of these lesions.

Material and Methods: Thirty cases of midline anterior skull base lesions were included in our study. Patients were operated upon by four routes: (i) unilateral subfrontal, (ii) bilateral subfrontal, (iii) frontotemporal approach, and (iv) bifrontal basal interhemispheric. Extent of resection was classified according to the Simpson grading system. The functional outcome of the patients was assessed by comparing the preoperative and the postoperative neurological examination, as well as the Karnofsky performance scale.

Results: We had 14 OGMs (46.7%), 9 TSMs (30%), and 7 PSMs (23.3%). The most commonly utilized approach was the subfrontal approach (unilateral or bilateral) in 80% of the cases, followed by the pterional approach in 16.6% of the cases. Total removal was achieved in 86.7% of the cases; subtotal excision

was achieved in 13.3% of the cases. 41.2% of our cases showed postoperative clinical improvement. We had two mortalities in our study, representing 6.7%. We did not detect any tumor recurrences in our follow up. The median preoperative Karnofsky scale was 85, while the median postoperative Karnofsky scale was 90.

Conclusion: Midline anterior skull base lesions are becoming amenable for total surgical excision with minimal morbidities and mortalities. Most preferred surgical routes are the subfrontal and the pterional approaches

Keywords: Olfactory groove meningiomas; Plenum Sphenopalanian meningiomas; Tuberculum sellae meningiomas; Simpson grade.

Dept. of Occupational and Environmental Medicine

189. Studying the Effect of Antioxidants on Cytogenetic Manifestations of Solvent Exposure in the Paint Industry

Aamal El Safty, Fateheya Mohamed Metwally, Aisha Mohammed Samir, Amir ElShahawy and Ehab Abdel Raouf

Toxicology and Industrial Health, 31(12): 1087-1094 (2015) IF: 1.859

Objective: To investigate the antioxidant role in reversing cytogenetic changes caused by solvent exposure in paint industry. **Subjects and Methods:** A prospective controlled clinical trial was performed on 39 workers exposed to solvents and 39 workers not exposed to solvents by supplying a mixture of antioxidant vitamins (A, C, E and selenium) and the after effects of such regimen were analyzed. Environmental monitoring was carried out for air concentrations of different solvents at workplace. Exposed group was cytogenetically tested before and after giving the mixture of antioxidant vitamins for 1 month duration.

Results: Frequency of chromosomal aberrations (CAs) and the mean of sister chromatid exchanges (SCEs) were statistically significantly higher among exposed workers than among controls. After the supplementation of antioxidants, there was a statistically significant decrease in the frequency of CAs, and 88% abnormal levels of SCEs were back to normal levels.

Conclusion: Antioxidant supplementation decreases the frequency of CAs and SCEs among exposed workers.

Keywords: Organic solvents; Paint industry; Cytogenetic damage; Antioxidants vitamins.

190. Use of A Field Portable X-Ray Fluorescence Analyzer for Environmental Exposure Assessment of A Neighborhood in Cairo, Egypt Adjacent to the Site of A Former Secondary Lead Smelter

William Menrath, Yehia Zakaria, Amal El-Safty, C. Scott Clark, Sandy M. Roda, Essam Elsayed, Caroline Lind, John Pesce and Hongying Peng

Journal of Occupational and Environmental Hygiene, 12: 555-563 (2015) IF: 1.166

The objectives of this study are to demonstrate for the first time the use of a field portable X-Ray Fluorescence Analyzer (XRF) in a multi-media environmental survey and to use the survey results to determine if residual lead from a once-active

secondary lead smelter in Cairo, Egypt, still posed a health risk to the residents when comparing results with US EPA standards. Results were analyzed to determine if relationships among the variables indicated that there were residual impacts of the former smelter. Samples collected inside and near a total of 194 dwellings were analyzed. The mean floor dust lead loading was 7.48 µg lead/ft². Almost 10% of the dwellings had at least one floor dust wipe sample that exceeded the United States Environmental Protection Agency's (USEPA) interior settled dust lead level of 40 µg lead/ft². The median paint lead level was 0.04 mg lead/cm². 17% of the dwellings had at least one interior paint sample that exceeded the USEPA standard of 1.0 mg lead/cm². Mean soil lead concentration in the study area was 458 ppm and 91 ppm outside the study area. Four of nine composite soil samples exceeded the US EPA limit for bare soil in play areas. Lead concentrations in samples collected in locations outside the study area did not exceed the limit. The highest concentration was in the plot closest to the smelter and may represent residual impact from the former smelter. Statistically significant relationships were not detected between interior floor dust lead loading and either interior paint lead loading or exterior dust lead concentration. Thus, no significant exposure from the former smelter was indicated by these analyses. This may have resulted from the time elapsed since the closing of the smelter and/or the relatively low paint lead levels. Further study is needed in other areas of Egypt near former and active lead smelters. Elevated levels of mercury and arsenic detected in soil samples do not appear to be related to the smelter but warrant further study.

Keywords: Field portable Xrf; Soil lead; Dust lead; Paint lead; Lead smelter; Xrf analysis of dust wipes; Egypt.

Dept. of Ophthalmology

191. Use of Autologous Fascia Lata as A Natural Biomaterial for Tectonic Support in Surgically Induced Necrotizing Scleritis

Hatem Mohamed Tafik kobtan

Eye, 29: 580-584 (2015) IF: 2.082

Background: Surgically induced scleral necrosis (SINS) is a severe form of scleritis threatening both vision and integrity of the eye. SINS is a rare sequel of ocular surgery and has been described after cataract extraction, trabeculectomy, strabismus, retinal detachment surgery including pars plana vitrectomy, penetrating keratoplasty, pterygium excision, and diode cyclophotocoagulation.

Materials and methods: To report on the application of autologous fascia lata as a readily available natural biomaterial for ocular tectonic support in SINS, we performed this retrospective chart review including two eyes of two patients; one case following both repaired rupture globe, pars plana vitrectomy, and diode laser transscleral cyclophotocoagulation and one case following pterygium surgical excision.

Results: Successful coverage of the area of scleral thinning with autologous fascia lata was achieved in both cases with overlying healthy vascularized conjunctiva and resolution of the ocular inflammation.

Conclusion: The fascia lata transplant combined with systemic immunosuppression was successful in providing adequate tectonic support and controlling the progression of scleral melt for two cases with SINS

Keywords: Sins; Immunesuppression.

192. Noninvasive Glaucoma Procedures: Current Options and Future Innovations

Ahmed M. Abdelrahman

Middle East African Journal of Ophthalmology, 22(1): 2-9 (2015)

Noninvasive glaucoma procedures (NIGPs) represent a new dawn in the management of glaucoma. They try to fill the gap between the shortcoming of invasive glaucoma surgeries and antiglaucoma medications. NIGPs were introduced as an adjunct or alternative treatments for glaucoma. Some of these procedures have shown good efficacy with few serious complications. Hence, they are now used as both primary and adjunctive therapy for glaucoma. The most common NIGPs involve laser and ultrasound technologies. Currently, the portfolio of NIGPs includes argon laser trabeculoplasty, selective laser trabeculoplasty, and micropulse diode laser trabeculoplasty. More recent innovations include therapeutic ultrasound for glaucoma, ultrasonic circular cyclocoagulation, and deep wave trabeculoplasty.

Keywords: Deep wave trabeculoplasty; High-intensity focused ultrasound; Noninvasive glaucoma procedures; Laser trabeculoplasty; Ultrasound circular coagulation.

Dept. of Orthopaedic

193. Functional Outcome of Unstable Pelvic Ring Injuries After Iliosacral Screw Fixation: Single Versus Two Screw Fixation

S. A. Khaled, O. Soliman and M. A. Wahed

European Journal of Trauma and Emergency Surgery, 41: 387-392 (2015) IF: 0.346

Introduction A clinical series of patients was studied to compare the functional score after the use of a single versus two percutaneous iliosacral screws for unstable posterior pelvic ring fractures with or without anterior fixation with the aim to explore if the addition of a second screw would provide better results regarding the functional outcome score. **Materials and methods** This case series includes 77 patients with an average of 32.6 years who suffered unstable posterior pelvic ring fractures. Forty-six were Tile type C and 31 were Tile type B. Patients underwent closed reduction and were fixed using percutaneous fluoroscopic-guided iliosacral screws in the supine position with 1 screw in 50 fractures, 2 screws in 37 fractures, 2 fractures were fixed with plates after ORIF, and in 6 cases (out of the bilateral cases) the undisplaced side was unfixed. Postoperatively three patients were lost to follow up and 74 patients (84 posterior fractures fixed with screws) were followed up for a mean of 37.4 months (range 6–151 months) and were evaluated using the Majeed score (1989). Results Clinical union occurred in all the patients, although in two cases posterior fixation failed and was revised. Radiologically excellent reduction was achieved in 55 patients (71.4 %), good in 16 (20.8 %), fair in 6 (7.8 %) and none had poor reduction. Statistically; among 62 cases that completed the Majeed score evaluation at the last follow-up session, there was no significant difference p value 0.051 between two groups. We also compared Majeed score in Tile B

and C fractures fixed with one versus two screws. **Conclusion** The addition of a second screw for posterior fixation did not show any statistically significant difference regarding functional outcome. Level of evidence Level IV clinical trial.

Keywords: Unstable pelvic fracture; Sacroiliac joint sacral fracture percutaneous Iliosacral Screws; Pelvic Fixation Functional outcome majeed score.

Dept. of Parasitology

194. Schistosome Infection Aggravates HCV-Related Liver Disease and Induces Changes in the Regulatory T-Cell Phenotype.

E. Loffredo-Verde, I. Abdel-Aziz, J. Albrecht, N. El-Guindy, M. Yacob, A. Solieman, U. Protzer, D. H. Busch, L. E. Layland and C. U. Prazeres Da Costa

Parasite Immunology, 37(2): 97-104 (2015) IF: 2.143

Schistosome infections are renowned for their ability to induce regulatory networks such as regulatory T cells (Treg) that control immune responses against homologous and heterologous antigens such as allergies. However, in the case of co-infections with hepatitis C virus (HCV), schistosomes accentuate disease progression and we hypothesized that expanding schistosome-induced Treg populations change their phenotype and could thereby suppress beneficial anti-HCV responses. We therefore analysed effector T cells and n/iTreg subsets applying the markers Granzyme B (GrzB) and Helios in Egyptian cohorts of HCV mono-infected (HCV), schistosome-co-infected (Sm/HCV) and infection-free individuals. Interestingly, viral load and liver transaminases were significantly elevated in Sm/HCV individuals when compared to HCV patients. Moreover, overall Treg frequencies and Helios(pos) Treg were not elevated in Sm/HCV individuals, but frequencies of GrzB(+) Treg were significantly increased. Simultaneously, GrzB(+) CD8(+) T cells were not suppressed in co-infected individuals. This study demonstrates that in Sm/HCV co-infected cohorts, liver disease is aggravated with enhanced virus replication and Treg do not expand but rather change their phenotype with GrzB possibly being a more reliable marker than Helios for iTreg. Therefore, curing concurrent schistosome disease could be an important prerequisite for successful HCV treatment as co-infected individuals respond poorly to interferon therapy.

Keywords: Granzyme B; Helios; Schistosoma mansoni; Hepatitis C Virus; Liver disease; Regulatory T cells.

195. Clinical and Serological Outcomes with Different Surgical Approaches for Human Hepatic Hydatidosis

Amr Abdelraouf, Amany Ahmed Abd El-Aal, Eman Yassin Shoei, Samar Sayed Attia, Nihal Ahmed Hanafy, Mohamed Hassani and Soheir Shoman

Rev Soc Bras Med Trop, 48(5): 587-593 (2015) IF: 0.977

Introduction: Hydatidosis is the result of infection with the larval stages of some species of the genus *Echinococcus*. Treatment approaches for hydatid cysts include the use of albendazole, surgery, and/or medico-surgical procedures. The choice of the therapeutic surgical approach depends on the cyst number and localization, surgeon expertise,

and presence of complications. The present study aimed to compare the outcomes of the following therapeutic approaches for the treatment of hepatic hydatid cysts: pericystectomy; the puncture, aspiration, injection, and reaspiration (PAIR) technique; and the PAIR technique followed by deroofing, evacuation of cysts, and omentoplasty.

Methods: The 54 patients were divided into 3 groups: Group I (14 patients) who underwent pericystectomy, Group II (23 patients) who underwent the PAIR technique, and Group III (17 patients) who underwent the PAIR technique followed by deroofing and omentoplasty. The diagnosis of hydatid cysts was based on serological testing using enzyme-linked immunosorbent assay, abdominal ultrasound, and parasitological examination of the cyst contents. Morbidity, mortality, length of hospital stay, recurrence, and postoperative complications were evaluated.

Results: Postoperative bleeding, infection and recurrence were reported in Groups I and II; Group III did not experience postoperative infection and had shorter hospital stays. Recurrence and postoperative complications did not occur in Group III.

Conclusions: The partial surgical procedure with deroofing, evacuation of the cysts, and omentoplasty, as performed in the present study, is recommended as a safe and effective method for elimination of the entire parasite with minimal possibility for intra-peritoneal spillage.

Keywords: Hydatid cyst; Partial pericystectomy; Pair technique; Deroofing.

196. Malondialdehyde; Lipid Peroxidation Plasma Biomarker Correlated with Hepatic Fibrosis in Human Schistosoma Mansoni Infection

Inas Abdel Aziz, Mariam Yacoub, Laila Rashid and Ahmad Solieman

ACTA Parasitologica, 60(4): 735-742 (2015) IF: 0.905

Schistosomiasis is a debilitating parasitic disease, affects large number of host species. Currently affects 250-300 million people in tropic areas. Schistosoma pathogenic impact is hepatic periportal fibrosis; the parasite-induced inflammatory cellular activation promotes oxidative stress, resulting in lipid peroxidation (LPO), with subsequent increase in inflammatory mediators as malondialdehyde (MDA). This study was set up to reveal possible contribution of lipid peroxidation byproducts MDA in hepatic pathophysiology. Results displayed that MDA don't tend to change in relation with either age, nor hepatic transaminases AST & ALT, while exhibited a significant increase in MDA levels in human schistosomiasis versus control group $P < 0.0001$ (Mn. \pm St.dev. 7.77 ± 3.59 , 1.21 ± 0.28 nmol/ml) respectively. Moreover; MDA plasma levels in Schistosoma infected group correlated significantly with two hepatic fibrosis parameters; (a) ultrasonography graded periportal fibrosis $P < 0.0001$. Levels of MDA in hepatic fibrosis grades 0, I, II, III in Schistosoma infected group were (Mn. \pm St.dev. 2.8 ± 0.64 , 4.3 ± 1.2 , 9.3 ± 1.6 and 10.8 ± 1.3 nmol/ml) respectively, (b) serum Hyaluronic acid (HA) $P < 0.0001$ (spearman $r = 0.77$) as a reliable hepatic fibrosis marker. This implies a considerable role of LPO byproducts in schistosomiasis pathogenicity, and proposing malondialdehyde as a biomarker for schistosomiasis morbidity.

Keywords: Lipid peroxidation; Malondialdehyd; Schistosoma mansoni; Hyaluronic acid.

197. In Vitro Effect of Mefloquine on Adult Schistosoma Mansoni

Omaima Mohammed Abou-Shady, Soheir Sayed Mohammed, Samar Sayed Attia, Hebat-Allah Salah Yusuf and Dina Omar Helmy

Research Journal of Parasitology, 10 (3): 111-119 (2015)

Schistosomiasis is a chronic disease that infects over 200 million people worldwide. The treatment and control of schistosomiasis largely depends on a single drug, praziquantel that might result in emergence of drug resistant parasites. Consequently, developing new drugs is a true need. The anti-malarial drug mefloquine has shown schistosomicidal activity. The aim of this study was to assess the effect of mefloquine against adult *S. mansoni* using in vitro approach. Ten laboratory bred mice were infected with *S. mansoni* cercariae. After 56 days, mice were sacrificed and adult Schistosoma were collected by perfusion. The in vitro approach consisted of placing adult Schistosoma worms in culture plates containing 100, 10 and 1 $\mu\text{g mL}^{-1}$ mefloquine and incubating the plates at 37°C for 24 h. The length and maximum width of adult Schistosoma were measured and LC50 and LC90 of mefloquine and praziquantel were calculated. The results showed that the LC50 for mefloquine and praziquantel were 3.961 and 6.675 $\mu\text{g mL}^{-1}$ respectively. The LC90 for mefloquine was 7.332 $\mu\text{g mL}^{-1}$ while that of praziquantel was 8.695 $\mu\text{g mL}^{-1}$. A statistically significant reduction in length and maximum width in adult worms treated with mefloquine was observed. Mefloquine exerted promising in vitro effects on adult *S. mansoni* worms.

Keywords: *S. Mansoni*; In Vitro; Mefloquine.

Dept. of Pathology

198. Study of the Effects of Cyclooxygenase-2 Inhibitor on the Promotion of Hepatic Tumorigenesis in Rats Fed a High Fat Diet

Magda Hamzawy, Laila Elsaid, Asmaa Shams, Laila Rashid, Soheir Mahfouz and Nivin Sharawy

J. Clin Exp Hepatol, 5(1): 14-21 (2015)

Background/objective: Hepatocellular carcinoma (HCC) is one of the most common malignant tumors worldwide. The highest prevalence of hepatitis is an important risk factor contributing to development of HCCs. However, an increasing number of cases are associated metabolic disease and steatohepatitis. Inflammation associated with many liver disease, seems to be a necessary pre-requisite for successful tumor initiation. Mechanisms that link high fat diet and inflammation initial stage of HCC are not completely understood. The present work was designed to investigate the effect of fat, through modulation of the insulin-like growth factors I and II (IGF-I and IGF-II), on the promotion of hepatocellular carcinoma, and the role of cyclooxygenase 2 (COX-2).

Methods: two main groups of rats were used: control and HCC groups. The HCC group was further sub-divide in to two subgroups, HCC fed with standard diet and HCC fed with high fat diet. The effects of celecoxib were also investigated in HCC fed with high fat diet.

Results: We found that high fat diet was associated with significant increases in COX2 and interleukin 6 (IL6) with significant promotion of HCC progression. The significant increase in IGF could contribute partially to the observed effects of high fat diet. In addition, celecoxib was found to significantly reduce HCC progression.

Conclusions: We conclude that COX2 could play central role in high prevalence of HCC observed with high fat diet. Several triggering factors such as IGF and IL6, together with the direct modulation of fat metabolism could open several novel preventive strategies of celecoxib treatment, and could be useful biomarkers for assessment of its pharmacological effects.

Keywords: Hepatocellular carcinoma; Fat diet; IGF; Celecoxib.

Dept. of Pathology

199. Long Term Evaluation of Human Umbilical Cord Blood Mesenchymal Stem Cells in the Management of Total Coronary Occlusion (Experimental Study in Dogs)

Faisal Torad, Mohammed Amer, Ashraf Shamaa, Omar El-Tookhy, Dina Sabry, Laila Rashed, Magdi Abd El Hamid, Soheir Mahfouz and Doaa Gharib

Asian Journal of Animal Sciences, 9(6):266-279 (2015)

Cardiomyocytes in the border zone of an old infarct are condemned to die by necrosis and apoptosis caused by a persistent impairment of the coronary vasodilatory reserve even after successful recanalization of coronary artery total occlusion. Therefore, Chronic Total Occlusion (CTO) remains one of the more challenges for coronary interventions with uncertainty regarding procedural success and long term benefits.

Twenty dogs were subjected experimentally to total coronary occlusion; half were treated with human Umbilical Cord Blood derived Mesenchymal Stem Cells (hUCB-MSCs). Clinical, electrocardiographic, echocardiographic, histopathological, biochemical and immunohistochemistry assessments were performed for 6 months at different time intervals. Demonstrated improved systolic function after one month following MSCs injection that was manifested by gradual increase of Fractional Shortening (FS%) and Ejection Fraction (EF). Electrocardiography exhibited improvement of ECG pattern with resolving of abnormal changes (elevated ST segment and inverted T) till retaining approximately normal ECG.

After hUCB-MSCs myocardial infiltrations, specific genes in cardiac tissue were highly expressed indicating the differentiation of hUCB-MSCs into endothelial cells.

The markedly increased vWF-positive cells in the damaged zone, suggested that angiogenesis is induced by promoting VEGFR2 expression at cardiac injury sites. This improved ischemia, thereby promoting body repair. Improved cardiac efficiency was expressed differently through various assessment parameters.

Keywords: Coronary; Occlusion; Myocardial; Infarction; Stem cells.

Dept. of Pediatrics

200. Biallelic Mutations in Snx14 Cause A Syndromic form of Cerebellar Atrophy and Lysosomeautophagosome Dysfunction

Akizu N, Cantagrel V, Zaki MS, Al-Gazali L, Wang X, Rosti RO, Dikoglu E, Gelot AB, Rosti B, Vaux KK, Scott EM, Silhavy JL, Schroth J, Copeland B, Schaffer AE, Gordts PL, Esko JD, Buschman MD, Field SJ, Napolitano G, Abdel-Salam GM, Ozgul RK, Sagiroglu MS, Azam M, Ismail S, Aglan M, Selim L, Mahmoud IG, Abdel-Hadi S, Badawy AE, Sadek AA, Mojahedi F, Kayserili H, Masri A, Bastaki L, Temtamy S, Müller U, Desguerre I, Casanova JL, Dursun A, Gunel M, Gabriel SB, de Lonlay P and Gleeson JG

Nature Genetics, 47: 528-534 (2015) IF: 29.352

Pediatric-onset ataxias often present clinically as developmental delay and intellectual disability, with prominent cerebellar atrophy as a key neuroradiographic finding. Here we describe a new clinically distinguishable recessive syndrome in 12 families with cerebellar atrophy together with ataxia, coarsened facial features and intellectual disability, due to truncating mutations in the sorting nexin gene SNX14, encoding a ubiquitously expressed modular PX domain-containing sorting factor. We found SNX14 localized to lysosomes and associated with phosphatidylinositol (3,5)-bisphosphate, a key component of late endosomes/lysosomes. Patient-derived cells showed engorged lysosomes and a slower autophagosome clearance rate upon autophagy induction by starvation. Zebrafish morphants for snx14 showed dramatic loss of cerebellar parenchyma, accumulation of autophagosomes and activation of apoptosis. Our results characterize a unique ataxia syndrome due to biallelic SNX14 mutations leading to lysosome-autophagosome dysfunction

Keywords: Biallelic mutations in Snx14 cause A syndromic form of Cerebellar Atrophy and Lysosome - Autophagosome Dysfunction.

201. The Extended Clinical Phenotype of 64 Patients with Dicator of Cytokinesis 8 Deficiency

Karin R. Engelhardt, PhD, Michael E. Gertz, PhD, Sevgi Keles, Alejandro A. Schaffer, Elena C. Sigmund, BSc, Cristina Glocker, Shiva Saghaei, Zahra Pourpak, Ruben Ceja, Atfa Sassi, Laura E. Graham, Michel J. Massaad, Fethi Mellouli, j Imen Ben-Mustapha, Monia Khemiri, Sara Sebnem Kilic, Amos Etzioni, Alexandra F. Freeman, Jens Thiel, Ilka Schulze, Waleed Al-Herz, Ayse Metin, Ozden Sanal, Ilhan Tezcan, Mehdi Yeganeh, Tim Niehues, Gregor Dueckers, Sebastian Weinspach, Turkan Patisroglu, Ekrem Unal, Majed Dasouki, Mustafa Yilmaz, Ferah Genel, Caner Aytekin, Necil Kutukculer, Ayper Somer, Mehmet Kilic, Ismail Reisli, Yildiz Camcioglu, Andrew R. Gennery, Andrew J. Cant, Alison Jones, Bobby H. Gaspar, Peter D. Arkwright, DPhil, Maria C. Pietrogrande, Zeina Baz, Saleem Al-Tamemi, Vassilios Lougaris, Gerard Lefranc, Nemeen Galal, Mohamed Bejaoui, Mohamed-Ridha Barbouche, i Raif S. Geha, Talal A. Chatila and Bodo Grimbacher

Journal Of Allergy And Clinical Immunology, 136: 402-412 (2015) IF: 11.476

Background Mutations in dedicator of cytokinesis 8 (DOCK8) cause a combined immunodeficiency (CID) also classified as autosomal recessive (AR) hyper-IgE syndrome (HIES). Recognizing patients with CID/HIES is of clinical importance because of the difference in prognosis and management.

Objectives We sought to define the clinical features that distinguish DOCK8 deficiency from other forms of HIES and CIDs, study the mutational spectrum of DOCK8 deficiency, and report on the frequency of specific clinical findings.

Methods Eighty-two patients from 60 families with CID and the phenotype of AR-HIES with (64 patients) and without (18 patients) DOCK8 mutations were studied. Support vector machines were used to compare clinical data from 35 patients with DOCK8 deficiency with those from 10 patients with AR-HIES without a DOCK8 mutation and 64 patients with signal transducer and activator of transcription 3 (STAT3) mutations.

Results DOCK8-deficient patients had median IgE levels of 5201 IU, high eosinophil levels of usually at least 800/ μ L (92% of patients), and low IgM levels (62%). About 20% of patients were lymphopenic, mainly because of low CD4+ and CD8+ T-cell counts. Fewer than half of the patients tested produced normal specific antibody responses to recall antigens. Bacterial (84%), viral (78%), and fungal (70%) infections were frequently observed. Skin abscesses (60%) and allergies (73%) were common clinical problems. In contrast to STAT3 deficiency, there were few pneumatoceles, bone fractures, and teething problems. Mortality was high (34%). A combination of 5 clinical features was helpful in distinguishing patients with DOCK8 mutations from those with STAT3 mutations.

Conclusions: DOCK8 deficiency is likely in patients with severe viral infections, allergies, and/or low IgM levels who have a diagnosis of HIES plus hypereosinophilia and upper respiratory tract infections in the absence of parenchymal lung abnormalities, retained primary teeth, and minimal trauma fractures.

Keywords: Autosomal recessive Hyper; Ige syndrome.

202. A Single-Gene Cause in 29.5% of Cases of Steroid-Resistant Nephrotic Syndrome

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Journal of American Society of Nephrology, 26: 1279-1289 (2015) IF: 9.343

Steroid-resistant nephrotic syndrome (SRNS) is the second most frequent cause of ESRD in the first two decades of life. Effective treatment is lacking. First insights into disease mechanisms came from identification of single-gene causes of SRNS. However, the frequency of single-gene causation and its age distribution in large cohorts are unknown. We performed exon sequencing of NPHS2 and WT1 for 1783 unrelated, international families with SRNS. We then examined all patients by microfluidic multiplex PCR and next-generation sequencing for all 27 genes known to

cause SRNS if mutated. We detected a single-gene cause in 29.5% (526 of 1783) of families with SRNS that manifested before 25 years of age. The fraction of families in whom a single-gene cause was identified inversely correlated with age of onset. Within clinically relevant age groups, the fraction of families with detection of the single-gene cause was as follows: onset in the first 3 months of life (69.4%), between 4 and 12 months old (49.7%), between 1 and 6 years old (25.3%), between 7 and 12 years old (17.8%), and between 13 and 18 years old (10.8%). For PLCE1, specific mutations correlated with age of onset. Notably, 1% of individuals carried mutations in genes that function within the coenzyme Q10 biosynthesis pathway, suggesting that SRNS may be treatable in these individuals. Our study results should facilitate molecular genetic diagnostics of SRNS, etiologic classification for therapeutic studies, generation of genotype-phenotype correlations, and the identification of individuals in whom a targeted treatment for SRNS may be available.

Keywords: Srns steroid-resistant; Nephrotic syndrome; Nephrosis; Kidney Failure; Genetic disease; Fsgs.

203. Outcomes of Early Ligation of Patent Ductus Arteriosus in Preterms, Multicenter Experience.

Ibrahim MH, Azab A, Kamal NM, Salama MA, Elshorbagy HH, Abdallah EA, Hammad A and Sherief LM.

Medicine, 2015 Jun;94(25):e915.: 1-5 (2015) IF: 5.723

Persistent ductal patency may have serious effects in preterm infants. Analysis of the results of different trials were inconclusive in determining whether medical or surgical closure of the ductus is preferable and what is the best timing for surgical intervention. The aim of this study was to evaluate the effect of timing of surgical closure of patent ductus arteriosus (PDA) on ventilatory, hemodynamic, and nutritional status of preterm infants. The authors retrospectively looked at the outcomes of surgical ligation of PDA from January 2010 to June 2014 at 2 Saudi neonatal intensive units at 2 tertiary care centers and the authors compared the results of early ligation (before 3 weeks) to the late ligation (after 3 weeks) regarding different hemodynamic, ventilatory, and nutritional parameters. A total of 120 preemies were included (75 preemies with early ligation and 45 with late ligation of PDA). The early ligation group had shorter duration of assisted ventilation of 10 (8-37) days as compared with 37 (90-26) days in the late ligation group ($P < 0.05$). The median fraction of inspired oxygen, needed to maintain good oxygen saturation in patients, was higher in the late ligation group [0.29 (0.21-0.70)] than in the early group [0.23 (0.21-0.55)] at 24 hours postoperatively. Full oral feeding was achieved earlier in the early ligation group than in the late group, 29 (15-73) days of life versus 53 (34-118) days of life, respectively ($P < 0.05$). Body weight at 36 weeks postconceptional age was higher in the early group--2100 (1350-2800)g--than in the late group--1790 (1270-2300)g--($P < 0.05$). Our study demonstrated that earlier surgical ligation of the PDA in preterm infants has a more favorable nutritional and ventilatory outcome.

Keywords: Outcomes, Ligation, Patent Ductus Arteriosus, Preterms

204. Epidemiology of Non-Fatal Injuries Among Egyptian Children: A Community-Based Cross-Sectional Survey

Eman Fawzy Halawa, Abeer Barakat, Hoda Ibrahim Ibrahim Rizk and Eman Mohamed Ibraheim Moawad

Bmc Public Health, 15: 1-9 (2015) IF: 2.264

Background: Injuries are a major cause of childhood morbidity and mortality worldwide. We aimed to determine the magnitude and characteristics of child injuries in Egypt and to identify the associated risk factors.

Methods: A community-based, cross-sectional survey was conducted over 27 Egyptian governorates from June to October, 2011. The target population was 1977 households with children aged 0-18 years who had experienced accidental injuries.

Results: In the 6-month period before the investigation, 15 76 injuries were reported in 1472 children from a sample population of 1399 households (response rate 70.8 %). Falls (25 %) and burn injuries (20.3 %) were the most common accidental injuries. The incidence of these injuries was significantly higher among boys (57.2 %) than girls and in children aged 2-6 years (70 %) compared with older and younger children. The five main causes of injuries were wounds (30.6 %), fractures (28.7 %), burns (20.3 %), swallowing a foreign body (8.4 %) and accidentally ingesting a poison (7.8 %). Injuries from drowning ($n=227$), animal bites ($n=222$) and sunstroke ($n=220$) mostly occurred in rural children, accounting for 65 %, 54.4 % and 52 %, respectively, of all injuries in rural children. Home and its immediate surroundings (64.4 %) was the most common setting for injuries. Maternal age, education and working status were also associated with childhood injuries ($p < 0.05$). Children of second and third birth order were at higher risk for injuries ($p < 0.0001$). **Conclusions:** Childhood injuries account for a substantial healthcare burden in Egypt. Our findings emphasise the importance of developing national preventive programs designed to reduce the incidence of childhood injuries.

Keywords: Childhood; Epidemiology; Non-Fatal Injuries; Egypt.

205. Can Fetal Pulmonary Artery Doppler Indices Predict Neonatal Respiratory Distress Syndrome?

GAFA Moety, HM Gaafar and NM El Rifai

Journal of Perinatology, 35: 1015-0 (2015) IF: 2.072

Objective: To study whether fetal main pulmonary artery (MPA) Doppler indices can predict the development of neonatal respiratory distress syndrome (RDS). Study

Design: This prospective cross-sectional study included pregnant women between 34 and 38+6 weeks gestation. The diagnostic accuracy of MPA Doppler measurements (systolic/diastolic (S/D) ratio, peak systolic velocity (PSV), pulsatility index (PI), resistance index (RI) and acceleration time/ejection time (At/Et)) for diagnosis of neonatal RDS was tested.

Result: Of the 698 eligible fetuses, 55 (7.87%) developed neonatal RDS. PSV, PI, RI and At/Et were positively correlated with gestational age. The strongest correlation was found with At/Et ($r=0.602$, $P<0.001$). PI and RI were significantly higher, whereas At/Et and PSV were significantly lower in fetuses that developed RDS. A cutoff value of 0.305 for At/Et predicted the development of RDS (sensitivity: 76.4%; specificity: 91.6%).

Conclusion: Development of neonatal RDS can be predicted using the MPA At/Et with high sensitivity and specificity.

Keywords: Pulmonary artery Doppler; Respiratory distress Syndrome; Fetal; Neonatal.

206. Early detection of right ventricular diastolic dysfunction by pulsed tissue Doppler echocardiography in iron loaded beta thalassemia patients

Hala Mounir Agha, Rania Zakaria, Fatma Alzahraa Mostafa and ala Hamza

Pediatric Cardiology, 36,(3): 468-474 (2015) IF: 1.31

Early heart iron overload in beta thalassemia major patients can be quantified through T2* cardiovascular magnetic resonance (CMR). To clarify the value of tissue Doppler imaging (TDI) in early detection of myocardial dysfunction in iron loaded thalassemia patients diagnosed by CMR. Two groups were included in the study; Group I: 69 asymptomatic thalassemia patients (28 females, 41 males), mean age 18.1 ± 7.03 years (range 6–39 years); Group II ($n = 41$) healthy normal controls matched for age and sex. Serum ferritin and CMR were performed to assess the cardiac siderosis ($T2^* < 20$ ms). Group I was subdivided into two subgroups; Group Ia ($n = 26$) $T2^* < 20$ ms and Group Ib ($n = 43$) $T2^* > 20$ ms. Conventional and Doppler echocardiography of LV, RV dimensions and functions and pulmonary artery pressure were evaluated. Right ventricular diastolic function assessed by tricuspid annular E'/A' was positively correlated with T2* value; lower tricuspid E'/A' ratios were correlated with lower T2* values ($r = 0.366$, $P = 0.002$). Tricuspid annular A' was significantly higher in group Ia compared to group Ib (16.7 ± 5.2 vs 12.1 ± 4.0 cm/s, $P < 0.001$). Tricuspid E'/A' < 1 was common in group Ia compared to group Ib (19/26 (73.0) vs 3/43 (6.97%), $P < 0.001$). By multivariate analysis, right ventricular diastolic dysfunction (tricuspid E'/A' < 1) was associated with serum ferritin and T2* level of the thalassemia patients. TDI is a promising tool for quantitative assessment of myocardial function and early detection of right ventricular diastolic dysfunction in iron loaded beta thalassemia major patients.

Keywords: Beta-Thalassemiacardiovascular Magnetic Resonancetissue Doppler Imagingechocardiographyright Ventricular Diastolic Dysfunctioncardiac Siderosis.

207. Incomplete Rv Remodeling After Transcatheter Asd Closure In Pediatric Age.

Hala M. Agha, Sonia A. El-Saiedi , Mohamed F. Shaltout, Hala S. Hamza, Hayat H. Nassar, Doaa M. Abdel-aziz and Amira Esmat El Tantawy

Pediatr Cardiol, 36(7): 1523-1531 (2015) IF: 1.31

Published data showing the intermediate effect of transcatheter device closure of atrial septal defect (ASD) in the pediatric age-group are scarce. The objective of the study was to assess the effects of transcatheter ASD closure on right and left ventricular functions by tissue Doppler imaging (TDI). The study included 37 consecutive patients diagnosed as ASD secundum by transthoracic echocardiography and TEE and referred for

transcatheter closure at Cairo University Specialized Pediatric Hospital, Egypt from October 2010 to July 2013. Thirty-seven age- and sex-matched controls were selected. TDI was obtained using the pulsed Doppler mode, interrogating the right cardiac border (the tricuspid annulus) and lateral mitral annulus, and myocardial performance index (MPI) was calculated at 1-, 3-, 6- and 12-month post-device closure. Transcatheter closure of ASD and echocardiographic examinations were successfully performed in all patients. There were no significant differences between two groups as regards the age, gender, weight or BSA. TDI showed that patients with ASD had significantly prolonged isovolumetric contraction, relaxation time and MPI compared with control group. Decreased tissue Doppler velocities of RV and LV began at one-month post-closure compared with the controls. Improvement in RVMPI and LVMPI began at 1-month post-closure, but they are still prolonged till 1 year. Reverse remodeling of right and left ventricles began 1 month after transcatheter ASD closure, but did not completely normalize even after 1 year of follow-up by tissue Doppler imaging.

Keywords: ASD; Myocardial performance index; Tissue doppler Imaging; Transcatheter closure.

208. Ovarian Dysgerminoma with Normal Serum Tumour Markers Presenting in A Child with Precocious Puberty

Kamal NM, Khan U, Mirza S, Mazoun K, Mirza FM and Jundi M.

Journal of Cancer Research And Therapeutics, 11(3):661: 1-4 (2015) IF: 0.791

A 7-year-old female child was presented to the emergency room with acute abdominal pain and vaginal bleeding. Her assessment revealed a firm large lower abdominal mass with evidence of precocious puberty with bilaterally symmetrically enlarged breast (Tanner stage B4-P1-A1). Abdominal imaging showed a well-defined soft midline pelvi-abdominal single mass measuring 7.0×12.6×11.7 cms with no ascites. Serum tumour markers including lactate dehydrogenase (LDH), beta-subunit of human chorionic gonadotropin (B-hCG) and luteinizing hormone/ follicular stimulating hormone (LH/FSH) were all normal. At operation, there was a huge abdominal tumour weighing 558 grams, localized to the right ovary sparing the left ovary, uterus, lymph nodes and other abdominal organs. Unilateral right salpingo-oophorectomy was performed. Histopathologic examination revealed ovarian dysgerminoma with intact capsule; FIGO Ia. Immunohistochemical stainings were positive for placental alkaline phosphatase (PALP), CD 117(c-kit) and calretinin focally but was negative for cancer antigen-125 (CA-125), B-hCG, S-100, carcinoembryonic antigen (CEA), and leukocyte common antigen (LCA). Being fitting in the low risk classification, the wait and see protocol was selected with strict follow-up with pediatric oncologist and pediatric surgeon. Along the duration of 2 years follow up, there was no more vaginal bleeding with dramatic reduction of the breast size and no recurrence.

Keywords: Ovarian dysgerminoma; Tumour markers; Child; Precocious puberty.

209. Acute Lymphoblastic Leukemia: Are Egyptian Children Adherent To Maintenance Therapy?

Khalek ER, Sherif LM, Kamal NM, Gharib AF and Shawky HM.

Journal of Cancer Research and Therapeutics, 11(1): 54-58 (2015) IF: 0.791

Background, Aims, Settings and Design: Poor adherence to oral maintenance chemotherapy can cause relapse of acute lymphoblastic leukemia (ALL). A multicenter study for the evaluation of adherence to oral 6-mercaptopurine (6-MP) maintenance chemotherapy for childhood ALL in Egypt to identify contributing factors and possible steps to promote adherence.

Materials and Methods: The study included 129 children with ALL in complete remission receiving 6-MP single daily oral dose in the evening. Evaluation was done through specific questionnaires for the patients as well as serum 6-MP measurements.

Results: Nonadherence was detected in around 56% by questionnaires and around 50% by serum 6-MP level measurement. There was a highly significant correlation between nonadherence as found by the questionnaire and 6-MP level (P - 0.001).

Nonadherence was significantly associated with low socioeconomic standard, noneducation and low educational level and large family size by both methods. High cost to come for follow-up visits was significant by questionnaire but not by 6-MP measurement. Adolescent age, the higher number of siblings, lack of written instructions, long time spent per visit, were all associated with higher rates of nonadherence, although none reached statistical significance.

Conclusions: Nonadherence is a real problem in pediatric patients. Specific questionnaires can be an excellent reliable method for the routine follow-up of these children, and drug level assay can be requested only for confirmation.

This protocol is especially effective in developing countries where financial resources may be limited. Every effort should be made to uncover its true incidence, contributing factors, and best methods of intervention.

Keywords: Acute lymphoblastic leukemia; Egyptian; Children; Adherence; Maintenance therapy.

210. Regression of A Large Congenital Hepatic Arteriovenous Malformation

Samy A. Abdelazim, Hebatallah A. Darwish, Sanaa A. Ali, Maha Z. Rizk and Mai O. Kadry

Tex Heart Inst, 42(2): 184-187 (2015) IF: 0.649

Congenital hepatic arteriovenous malformations are rarely seen in association with persistent neonatal pulmonary hypertension. We report the case of a full-term female newborn who presented with heart failure and respiratory distress soon after birth. Echocardiographic investigation revealed severe persistent pulmonary hypertension and patent ductus arteriosus.

Here we report spontaneous regression in size of both the feeder vessel and the vascular bed of the congenital hepatic arteriovenous malformation. We postulate that our conservative use of oral heart failure therapy, in the form of diuretic agents and captopril, decreased the congestion and diameter of the affected vessels.

Keywords: Arteriovenous malformations diagnosis; Hepatic-Therapy; Captopril-therapeutic use- diagnosis; Differential, Diuretics- therapeutic use; Heart failure-Etiology-drug therapy;

Infant; Newborn; Pulmonary hypertension; Persistent; Remission; Spontaneous; Venous thrombosis.

Dept. of Physiology

211. Differentiated mesenchymal stem cells ameliorate cardiovascular complications in diabetic rats

Haidara MA, Assiri AS, Youssef MA, Mahmoud MM, Ejaz A, Al-Hakami A and Chandramoorthy HC

Cell Tissue Res. 359(2):565-75 (2015) IF: 3.565

Cardiovascular manifestations are one of the major complications of type 1 diabetes mellitus (T1DM) and supersede the slow progression of DM in most cases as the leading cause of mortality. There have been many studies and trials in regenerating the functional β -cells of islets from mesenchymal stem cells (MSCs) with varied success. The effect of MSCs ex vivo differentiated to mimic functional insulin-secreting β -cells of islets and their impact on restoration of diabetic complications and transplantation via systemic delivery have not been well studied. In the current study, bone marrow MSCs differentiated to insulin-secreting β -cells are used to treat STZ-induced diabetic rats. The post-homing effects of the differentiated MSCs (dMSCs) were endogenous with definite reversal of diabetic parameters. Consequently, the altered cardiac functions like heart beat rate, left ventricular performance, contractility index and physiological body weight gain due to hyperglycemia were ameliorated into normacy. The primary onset cardiac performance and the endothelial activation were well evidenced by high fibrinogen levels and systolic blood pressure (SBP) being reversed on the treatment by dMSCs. Further high basal $[Ca^{2+}]_c$ in isolated endothelial cells and thereby increased ROS confirmed the endothelial activation. The levels of pro-apoptotic makers p53 and Bax were highly expressed in the diabetic groups indicating oxidative stress through ROS induced by high cytosolic calcium skewing the cells towards apoptosis. The expression of the anti-apoptotic marker Bcl-2 was observed to be low in the diabetic group further augmenting the stress state of endothelial cells (ECs) in T1DM. Restoration of $[Ca^{2+}]_c$ chelates ROS and the subsequent reversal of pro- and anti-apoptotic markers after the successful treatment of dMSCs proved that endogenous reconstitution of insulin secretion improves diabetic-induced cardiac manifestations.

212. Heart Failure Models: Traditional and Novel Therapy

Mohamed A Haidara, Abdullah S Assiri, Hanaa Z Yassin, Hania I Ammar, Milan M. Obradovic and Esma R. Isenovic

Current Vascular Pharmacology, 13: 658-669 (2015) IF: 2.966

Cardiovascular disease (CVD) is among the most major causes of morbidity and mortality worldwide. Great progress has been made in the management of CVD which has been influenced by the use of experimental animal models. These models provided information at cellular and molecular levels and allowed the development of treatment strategies. CVD models have been

developed in many species, including large animals (e.g. pigs and dogs) and small animals (e.g. rats and mice). Although, no model can solely reproduce clinical HF, simulations of heart failure (HF) are available to experimentally tackle certain queries not easily resolved in humans. Induced HF may also be produced experimentally through myocardial infarction (MI), pressure loading, or volume loading. Volume loading is useful to look at hormone and electrolyte disturbances, while pressure loading models is helpful to study ventricular hypertrophy, cellular imbalance and vascular changes in HF. Coronary heart disease is assessed in MI animal models. In this review we describe various experimental models used to study the pathophysiology of HF.

Keywords: Heart failure; Animal models; Statins; Diuretics; Stem cell therapy.

213. Effect of Vitamin D3 on Thyroid Function and De-Iodinase 2 Expression in Diabetic Rats

Zienab Alrefaie and Hossam Awad

Arch Physiol Biochem, 121(5): 206-209 (2015) IF: 1.763

This study aimed to assess the effect of vitamin D3 administration to diabetic rats on thyroid profile and deiodinase 2 (D2).

Methods: Thirty male Wistar rats were included into three groups; control, streptozotocin-induced diabetic and diabetic supplemented with vitamin D3 groups. Ten weeks later, serum levels of free T4, free T3 and TSH were measured. Tissue homogenates from liver, kidney, muscle, femur bone, heart and brain were obtained and assessed for D2 mRNA.

Results: Diabetic rats demonstrated significant increase in free T4 and significant decrease in free T3. These changes were ameliorated by vitamin D3 administration. D2 mRNA was significantly reduced in all tissue homogenates obtained from diabetic rats, while vitamin D3 treatment significantly enhanced D2 in liver and brain homogenates.

Conclusion: Diabetes mellitus inhibited peripheral conversion of T4 into T3 secondary to reduction in D2 expression. Vitamin D3 greatly corrected the alterations in thyroid profile and D2 expression.

Keywords: Deiodinase 2; Diabetes mellitus; Thyroid hormones; Vitamin D3.

214. Polymorphism in variable number of tandem repeats of dopamine d4 gene is a genetic risk factor in attention deficit hyperactive egyptian children: pilot study

Shahin O, Meguid NA, Raafat O, Dawood RM, Doss M, Bader El Din NG and El Awady MK

Biomark Insights, 5 (10): 33-38 (2015)

Introduction: The variable number of tandem repeats (VNTR) of the dopamine receptor D4 (DRD4) gene among humans may elucidate individual differences in susceptibility to neuropsychiatric diseases. Dopamine dysfunction may be involved with Attention Deficit Hyperactivity Disorder (ADHD) symptoms. In this study, we report the association between the phenotype of ADHD, a condition characterized by

inattentiveness, hyperactivity, and impulsiveness, and a 48-base pair VNTR in exon 3 of the DRD4 polymorphism.

Subjects and Methods: We used a case control approach conducted on 29 ADHD and 31 ethnically matched control Egyptian children (ages 6-12 years). Cases were assessed by a psychiatric semi-structured interview and the Conners' Parent Rating Scale. VNTR polymorphisms of the DRD4 gene were done by touchdown PCR program using exon 3-specific primers followed by agarose gel electrophoresis.

Results: We observed a significant association between the existence of D4.4 allele of DRD4 and ADHD (P, 0.002); 6.9% of cases showed a single D4.4 and 10.3% showed a double D4.4 as compared to controls in whom D4.4 has never been detected.

Conclusion: Children with smaller number of repeat alleles (two to four repeats) of the DRD4 gene have higher possibility to develop ADHD in Egyptian children.

Keywords: ADHD; DRD4; VNTR.

Dept. of Public Health

215. Reliability of Risk-Based Screening for Hepatitis C Virus Infection Among Pregnant Women in Egypt

Samer S. El-Kamary , Mohamed Hashem , Doa'a A. Saleh, Mohamed Ehab, Sahar A. Sharaf, Fatma El-Mougy, Lobna Abdelsalam, Ravi Jhaveri, Ahmed Aboulnasr and Hesham El-Ghazaly

Journal of Infection, 70: 512-519 (2015) IF: 4.441

Objectives: The Centers for Disease Control and Prevention (CDC) only recommends risk-based HCV screening for pregnant women in the United States. This study sought to determine the reliability of risk-based versus universal HCV screening for pregnant women in Egypt, a country with the world's highest HCV prevalence that also relies on risk-based screening, and to identify additional characteristics that could increase the reliability of risk-based screening.

Methods: Pregnant women attending the Cairo University antenatal clinic were tested for anti-HCV antibodies and RNA, and demographic characteristics and risk factors for infection were assessed.

Results: All 1250 pregnant women approached agreed to participate (100%) with a mean age of 27.4 ± 5.5 years (range:16-45). HCV antibodies and RNA were positive in 52 (4.2%) and 30 (2.4%) women respectively. After adjustment, only age (OR:1.08, 95%CI:1.002-1.16, $p < 0.01$), history of prior pregnancies (OR:1.20, 95%CI:1.01-1.43, $p < 0.04$), and working in the healthcare sector (OR:8.68, 95%CI:1.72-43.62, $p < 0.01$), remained significantly associated with chronic HCV infection.

Conclusions: Universal antenatal HCV screening was widely accepted (100%) and traditional risk-based screening alone would have missed 3 (%10) chronically infected women, thereby supporting universal screening of pregnant women whenever possible. Otherwise, risk-based screening should be modified to include history of prior pregnancy and healthcare employment.

Keywords: Egypt; Hepatitis C; Mass screening; Pregnancy; Risk factors.

216. Impact of Cash Transfer Programs on Health Status of Beneficiary Families: A Community Based Study, Old Cairo, Egypt

Ghada Wahby Elhady, Hoda Ibrahim Ibrahim Rizk and Walaa Ahmed Khairy

Health Science Journal, Vol. 9 No. 7:7: 1-7 (2015)

Background: Egypt is undergoing rapid socioeconomic changes that affect health and social distribution of its citizens. One of the most increasingly employed poverty alleviation strategies is Cash Transfer (CT) programs. CT Programs are expected to improve all aspects of citizens' lives, including their health status. CT Programs are classified into two types; Conditional (CCT) and Unconditional (UCT).

Aim: This study was carried out to assess the impact of UCT programs on the health status of Beneficiary Families through comparing them with Non Beneficiary Families.

Methods: A community-based, cross sectional comparative study was conducted in a randomly selected urban area in Cairo - Egypt. The sample included all the 200 registered Beneficiary Families at the Social Affairs Office, Egyptian Ministry of Social Solidarity and 200 Non Beneficiary Families. A questionnaire form was used to record data about members of the 400 families during a household survey. Analysis was performed using SPSS statistical software (version 17.0). The following was estimated at family level: disease burden (estimated as the sum of years lost due to morbidity and premature death) and extent of health service utilization.

Results: The study findings revealed that the disease burden was 7995 years among Beneficiary Families with a mean of 8 years per family member versus 5000 years for Non Beneficiary Families (mean =5 years/ family member). For health service utilization in the three months preceding the study, 31% of Beneficiary Family members received health services versus 35% of Non Beneficiary Family members ($p=0.03$).

Conclusion: UCT is not enough to ensure better health status of beneficiary families. Policy makers should encourage moving towards conditional forms of CT programs and increasing the amount of cash payments.

Keywords: Unconditional cash transfer programs; Beneficiary Families; Egypt.

Dept. of Rheumatology

217. Predictors of European League Against Rheumatism (EULAR) Good Response, Das-28 Remission and Sustained Responses to Tnf-Inhibitors in Rheumatoid Arthritis: A Prospective Study in Refractory Disease

Reem Hamdy A Mohammed, Faisal Farahat, Hanady H Kewan and Mohammed A Bukhari

Springer Plus, 4: 207-0 (2015)

The aim of this study was to survey factors related to EULAR good response, the DAS-28 definition of remission, ACR 50 response, sustained response to tumor necrosis factor inhibitors (TNF-I) therapy in biologic naïve patients with refractory rheumatoid arthritis. This was a single center observational clinical prospective 2 years' study, EULAR response criteria, DAS 28, HAQ and radiographic changes were recorded. Eighty

patients included (64 females and 16 males, mean age was 48.4 + -17.9 years, mean disease duration 7.3 + -5.9 years). At 6 months 70% achieved EULAR good response, 51.8% achieved DAS-28 remission. Good response/sustained responses inversely correlated with baseline DAS-28 and radiographic erosions $P < 0.05$. EULAR good response/remission by 6 months, sustained response at 2 years positively correlated with the decline in RF titers ($r = 0.33$, $P < 0.05$ & $r = 0.30$, $P < 0.03$ respectively), negatively correlated with the baseline HAQ. Regression analysis identified higher serum hemoglobin concentration, lower baseline HAQ scores, and the absence of radiographic erosions as significant predictors of good as well as sustained responses after adjustment for potential covariates. Methotrexate was associated with favorable responses and remission at 6 months (ORs = 1.13, 1.30 respectively). The study concluded that a lower baseline DAS-28 and HAQ scores, the lack of radiographic erosions favored EULAR good response and were significant predictors of sustained response to TNF-I.

Keywords: Eular good response; Das-28 remission; Sustained responses; Refractory rheumatoid arthritis; Tumor.

Dept. of Urology Dept

218. Mechanisms of environmental chemicals that enable the cancer hallmark of evasion of growth suppression

Nahta R, Al-Mulla F, Al-Temaimi R, Amedei A, Andrade-Vieira R, Bay SN, Brown DG, Calaf GM, Castellino RC, Cohen-Solal KA, Colacci A, Cruickshanks N, Dent P, Di Fiore R, Forte S, Goldberg GS, Hamid RA, Krishnan H, Laird DW, Lasfar A, Marignani PA, Memeo L, Mondello C, Naus CC, Ponce-Cusi R, Raju J, Roy D, Roy R, Ryan EP, Salem HK, Scovassi AI, Singh N, Vaccari M, Vento R, Vondráček J, Wade M, Woodrick J and Bisson WH

Carcinogenesis. 36 Suppl 1:S2-18 (2015) IF: 5.334

As part of the Halifax Project, this review brings attention to the potential effects of environmental chemicals on important molecular and cellular regulators of the cancer hallmark of evading growth suppression. Specifically, we review the mechanisms by which cancer cells escape the growth-inhibitory signals of p53, retinoblastoma protein, transforming growth factor-beta, gap junctions and contact inhibition. We discuss the effects of selected environmental chemicals on these mechanisms of growth inhibition and cross-reference the effects of these chemicals in other classical cancer hallmarks.

219. PCA3-Based Nomogram for Predicting Prostate Cancer and High Grade Cancer on Initial Transrectal Guided Biopsy

Ahmed Elshafei, K. Kent Chevli, Ayman S. Moussa, Onder Kara, Shih-Chieh Chueh, Peter Walter, Asmaa Hatem, Tianming Gao, Stephen Jones and Michael Duff

The Prostate, 75 (2015) IF: 3.565

Background: To develop a validated prostate cancer antigen 3 (PCA3) based nomogram that predicts likelihood of overall prostate cancer (PCa) and intermediate/high grade prostate cancer (HGPCa) in men pursuing initial transrectal prostate biopsy (TRUS-PBx

Methods: Data were collected on 3,675 men with serum prostate specific antigen level (PSA) 20ng/ml who underwent initial prostate biopsy with at least 10 cores sampling at time of the biopsy. Two logistic regression models were constructed to predict overall PCa and HGPCa incorporating age, race, family history (FH) of PCa, PSA at diagnosis, PCA3, total prostate volume (TPV), and digital rectal exam (DRE).

Results: One thousand six hundred twenty (44%) patients had biopsy confirmed PCa with 701 men (1 (%9.1 showing HGPCa. Statistically significant predictors of overall PCa were age ($P < 0.0001$, OR. 1.51), PSA at diagnosis ($P < 0.0001$, OR.1.95), PCA3 ($P < 0.0001$, OR.3.06), TPV ($P < 0.0001$, OR.0.47), FH ($P = 0.003$, OR.1.32), and abnormal DRE ($P = 0.001$, OR. 1.32). While for HGPCa, predictors were age ($P < 0.0001$, OR.1.77), PSA ($P < 0.0001$, OR.2.73), PCA3 ($P < 0.0001$, OR.2.26), TPV ($P < 0.0001$, OR.0.4), and DRE ($P < 0.0001$, OR.1.53). Two nomograms were reconstructed for predicted overall PCa probability at time of initial biopsy with a concordance index of 0.742 (Fig. 1), and HGPCa with a concordance index of 0.768 (Fig. 2).

Conclusions: Our internally validated initial biopsy PCA3 based nomogram is reconstructed based on a large dataset. The c-index indicates high predictive accuracy, especially for high grade PCa and improves the ability to predict biopsy outcomes.

Keywords: Pca3 nomogram; Prostate cancer; Prostate biopsy.

220. A Pretreatment Nomogram for Prediction of Biochemical Failure After Primary Cryoablation of the Prostate

Ahmed Elshafei, Evan Kovac, Nivedita Dhar, David Levy, Thomas Polascik, Vladimir Mouraviev, Changhong Yu and J. Stephen Jones

The Prostate, 75 (2015) IF: 3.565

Background: To create a predictive nomogram for biochemical failure following primary whole-gland cryoablation of the prostate for localized prostate cancer (LPCa).

Methods: We retrospectively analyzed 2,242 patients from the Cryo On-Line Database (COLD) who were treatment naive and had undergone primary whole gland cryoablation of the prostate for biopsy-confirmed LPCa. Kaplan-Meier (KM) curves estimating 5 year biochemical progression-free survival (bPFS) were generated. Multivariable Cox proportional hazards analysis (CoxPH) was performed in order to construct the nomogram. The nomogram was internally validated using the bootstrap technique.

Results: Overall, the KM estimated 5 year bPFS was 72.8%. Stratified by D'Amico risk, The KM estimated 5 year bPFS was 82.6%, 71.1%, and 57.8% for low-, intermediate-, and high-risk groups, respectively. Statistically significant predictors of biochemical outcomes from CoxPH analysis were pre-treatment prostate specific antigen (PTPSA) ($P < 0.001$), total prostate volume ($P = 0.004$), clinical stage ($P = 0.034$), and Gleason score (0.004). A nomogram for predicted 5 year biochemical progression free probability was constructed with a concordance index of 0.652. An online risk calculator was also generated.

Conclusions: To the best of our knowledge, this is the first predictive nomogram for biochemical outcomes after primary whole gland cryoablation of the prostate using socio-demographic, pretreatment, clinical, and prostate biopsy data. Our nomogram and online risk calculator can guide both

patients and urologists for shared decision making regarding definitive treatment options.

Keywords: Nomogram; Biochemical progression free survival; Low grade prostate.

221. Management of Peyronie's Disease After Collagenase (Xiaflex)

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Current Drug Targets, 16: 484-494 (2015) IF: 3.021

Although the prevalence of Peyronie's disease (PD) is reported to be 3-9% in men, the true prevalence is likely higher due to under-reporting. Many treatment modalities have been described for PD with varying degrees of success. In this article, we review and summarize the current literature pertaining to all pharmacotherapies (oral, intralesional, iontophoresis, and topical) and minimally invasive treatments available for PD (vacuum, traction device, shock wave therapy, and radiation treatment). Additionally, we discuss emerging therapies for PD that are still in pre-clinical development, including stem cell therapy.

Keywords: Pharmacotherapy; Peyronie's disease; Shock wave Therapy; Stem cell therapy; Collagenase.

222. For Single Dosing, Levofloxacin Is Superior to Ciprofloxacin When Combined with an Aminoglycoside in Preventing Severe Infections After Prostate Biopsy

Raman Unnikrishnan, Ahmed El-Shafei, Eric A. Klein, J. Stephen Jones, Ganesh Kartha and Howard B. Goldman

Urology, 85 (2015) IF: 2.188

Objective: To investigate whether there is benefit with a longer acting oral fluoroquinolone, we compared the rate of infection after transrectal ultrasound-guided prostate biopsy between 2 prophylactic antibiotic regimens: ciprofloxacin vs levofloxacin + each combined with an aminoglycoside (AG).

Methods: A retrospective review was performed of all transrectal ultrasound-guided prostate biopsies from September 2011 to January 2013. Initially our regimen entailed 1 dose of 500-mg ciprofloxacin and an AG. In June 2012, we switched to 1 dose of 750-mg levofloxacin and an AG. Infections were categorized as severe if requiring hospital admission, overnight observation, or emergency room treatment for fever or chills. Those treated as an outpatient were defined as mild.

Results: Of 1189 total biopsies, the total infection rate was 3.18% (17 of 535) in the ciprofloxacin group and 2.14% (14 of 654) in the levofloxacin group ($P = .26$). The rate of mild infection was 0.75% (4 of 535) in the ciprofloxacin group and 1.22% (8 of 654) in the levofloxacin group ($P = .56$). The rate of severe infection was significantly higher in the ciprofloxacin group at 2.43% (13 of 535) compared with that of 0.92% (6 of 654) in the levofloxacin group ($P = .04$). On multivariate analysis, use of ciprofloxacin rather than levofloxacin was associated with an increased risk of severe infection (odds ratio, 4.59; $P = .04$).

Conclusion: Empiric prophylaxis for prostate biopsies with a single-dose fluoroquinolone augmented with an AG is optimal to reduce infectious complications. We found 750-mg levofloxacin resulted in significantly fewer severe infections compared with 500-mg ciprofloxacin potentially because of its longer half-life.

223. The Effect of Androgen Deprivation Therapy Before Salvage Whole-Gland Cryoablation After Primary Radiation Failure in Prostate Cancer Treatment

Roger Li, Herbert C. Ruckle, Amy E. Schlaifer, Ahmed El-Shafei, Changhong Yu and J. Stephen Jones

Urology, 85: (2015) IF: 2.188

Objective: To define the effects of androgen deprivation therapy (ADT) used prior to salvage cryoablation (SC) for the treatment of recurrent localized prostate cancer after radiation. **METHODS:** Patients from the Cryo On-Line Database registry undergoing SC after radiation failure were divided according to whether they had previously received or not received ADT. Baseline characteristics including demographics and presalvage cancer risk were compared. Biochemical progression-free survival (bPFS) as defined by the Phoenix criteria was compared between the 2 groups as a whole and also in D'Amico risk-stratified subgroups. In addition, postsurgical complications such as urinary fistula, retention, incontinence, and erectile dysfunction were compared.

Results: Two groups consisting of 254 and 486 patients with and without pre-SC ADT were analyzed. The patients who received ADT were younger ($P = .003$) and had higher presalvage D'Amico risks ($P < .001$). The 5-year bPFS was 63.8% and 39.3% for the hormone-naïve and the pre-SC ADT patients, respectively ($P < .001$). On subgroup analysis, the difference in 5-year bPFS was significant only for patients with a high D'Amico cancer risk (54.3% vs 30.5%; $P = .013$). On multivariate analysis, presalvage prostate-specific antigen (hazard ratio [HR], 1.7), Gleason score = 8 (HR, 2.5), and use of pre-SC ADT (HR, 1.7) correlated with biochemical recurrence. Additionally, patients receiving pre-SC ADT experienced less urinary retention ($P = .001$) and incontinence ($P = .008$) but were more likely to be impotent ($P = .010$).

Conclusion: Patients receiving ADT before SC, especially those with high-risk prostate cancer, had worse 5-year bPFS. Added caution is needed when selecting patients having previously received ADT for salvage cryotherapy.

Faculty of Oral Dental Medicine

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224. Comparison Between Threedimensional and Standard Miniplates in the Management of Mandibular Angle Fractures: A Prospective, Randomized, Double-Blind, Controlled Clinical Study

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International Journal of Oral And Maxillofacial Surgery, 44(3): 316-321 (2015) IF: 1.565

The aim of this study was to compare the clinical and radiological outcomes of mandibular angle fractures (MAFs) managed with three-dimensional (3D) miniplates and standard miniplates (according to Champy's principles). A prospective, randomized controlled clinical study was carried out on 20 patients with MAFs, divided into two groups. Group A patients were treated with a single 1-mm 3D titanium miniplate; group B patients were treated with a single 2.0-mm standard titanium miniplate. Patients were followed for 6 months for infection, wound dehiscence, segmental mobility, malocclusion, mouth opening, hardware failure, hardware palpability, paraesthesia, and malunion/non-union. A densitometry analysis was performed using DIGORA software on digital panoramic radiographs to evaluate bone healing. Six complications occurred, representing a total rate of 30%. Three complications occurred in group A and three in group B, with identical complication rates of 30%. No major difference in terms of the radiographic assessment was observed between the two systems. The 3D curved strut plate is an effective treatment modality for the management of MAFs, with a complication rate comparable to that found with the standard miniplate. This trial is registered at ClinicalTrials.gov, number NCT01939015.

Keywords: 3D Miniplate; Standard miniplate; Mandibular angle Fractures; Postoperative complications; Internal rigid fixation; RCT.

225. Arthroscopic Discopexy is Effective in Managing Temporomandibular Joint Internal Derangement in Patients with Wilkes Stage II and III

Joseph P. McCain, Reem H. Hossameldin, Samer Srouji and Amr Maher,

Journal of Oral And Maxillofacial Surgery, 73: 391-401 (2015) IF: 1.425

Purpose: Disc repositioning for temporomandibular joint (TMJ) internal derangement (ID) is a well-established surgical technique with variable success. The purpose of the present study was to assess the outcomes after arthroscopic disc repositioning (discopexy) for TMJ ID.

Patients and Methods: This was a prospective, cohort, single-institutional clinical study. The study included patients with TMJ ID in whom diagnostic arthroscopy had failed. These patients were presented and treated at Miami Oral and Maxillofacial Surgery, Baptist Hospital (Miami FL). The predictive variable was the Wilkes diagnostic categories, presented in 2 groups: II and III versus IV and V. The primary outcome variable was the

absence of joint pain at 12 months postoperatively. The secondary outcome variables included joint function, maximum interincisal opening, medication use, joint loading sign, and muscle pain. The patients were followed for 1 year postoperatively. The statistical analyses included paired and independent sample Student's t test, c² test, and logistic regression analysis.

Results: A total of 32 subjects (42 joints), with a mean age of 31 years, were included in the present study; 28 (87.5%) were women. Of the 42 joints, 71.4% were classified as Wilkes stage II and III. A successful outcome was seen in 69% of the studied subjects and in 86.7% of the Wilkes II and III group versus 25% of the Wilkes IV and V group (P = .001).

Conclusion: The results of the present study have shown that TMJ arthroscopic discopexy is an effective and predictable treatment of patients with TMJ ID in whom primary TMJ arthroscopy failed. Our results have also shown that patients with Wilkes II or III TMD will have the most successful outcome.

Keywords: TMJ; Arthroscopy; Discopexy; Wilkes; Internal derangement.

226. Platelet-Rich Fibrin in Maxillary Sinus Augmentation: A Systematic Review

Sherif Ali, Saleh Ahmed Bakry and Hesham Abd-Elhakam

Journal of Oral Implantology, 41(6): 746-753 (2015) IF: 1.016

The aim of this study was to systemically assess the efficacy of platelet-rich fibrin (PRF) on maxillary sinus augmentation using the lateral approach. A PubMed search and a hand search of relevant journals and the bibliographies of selected articles were performed. Clinical studies using PRF with open maxillary sinus augmentation were included. The search provided 290 titles; only 8 studies fulfilled the inclusion criteria. Identified studies showed heterogeneity regarding surgical technique, grafting material, implant placement time, protocol, outcome measures, healing time for biopsy, and implant placement, as well as follow-up period. From the 8 identified studies, 3 studies used PRF as a sole filling material, whereas the other 5 studies used PRF with bone substitutes. PRF showed promising results as a sole filling material for sinus lift with simultaneous implant placement, and PRF seemed to accelerate maturation of a demineralized freeze dried bone allograft. Conversely, it had no effect on deproteinized bovine maturation. PRF fibrin membranes represent an easy and successful method to cover the sinus membrane or osteotomy window.

Keywords: Dental implants; Maxillary sinus lift; Platelet-rich fibrin; Systematic review.

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227. Potential Antifibrotic and Angiostatic Impact of Idebenone, Carnosine and Vitamin E in Nano-Sized Titanium Dioxide-Induced Liver Injury.

Samy A. Abdelazim, Hebatallah A. Darwish, Sanaa A. Ali, Maha Z. Rizk and Mai O. Kadry

Cell Physiol Biochem., 35: 2402-2411 (2015) IF: 2.874

The present study investigated the in vitro and in vivo effects of individual and combined doses of idebenone, carnosine and vitamin E on ameliorating some of the biochemical indices of nano-sized titanium dioxide (n-TiO₂) in mice liver. **METHODS:** The in vitro cytotoxic effect of nano-sized anatase TiO₂ (21 nm) on hepatic cell lines (HepG 2) was investigated. Additionally, n-TiO₂ was orally administered (150 mg/kg/day) for 2 weeks, followed by a daily intragastric gavage of the aforementioned antioxidants for 1 month. **RESULTS:** n-TiO₂ induced significant cytotoxicity in hepatic cell lines and elevated the levels of serum alanine aminotransferase (ALT), aspartate aminotransferase (AST), hepatic total antioxidant capacity (TAC) and nitrite/nitrate (NO_x) levels. Meanwhile, glutathione-S-transferase (GST) activity was significantly reduced. Moreover, RT-PCR and western blot analysis showed that n-TiO₂ significantly altered the mRNA and protein expressions of transforming growth factor-beta (TGF-β1) and Smad-2, as well as vascular endothelium growth factor (VEGF). Histopathological examination of hepatic tissue reinforced these results.

Keywords: Nano-titanium dioxide; In vitro; Vegf and western blot.

228. Amelioration of Titanium Dioxide Nanoparticles-induced Liver Injury in Mice: Possible Role of Some Antioxidants

Samy A. Abdel Azim, Hebatallah A. Darwish, Maha Z. Rizk, Sanaa A. Ali and Mai O. Kadry

Experimental and Toxicologic Pathology, 67(4): 305-314 (2015) IF: 1.86

This study investigates the efficacy of idebenone, carnosine and vitamin E in ameliorating some of the biochemical indices induced in the liver of titanium dioxide nanoparticles (TiO₂NPs) intoxicated mice. Nano-anatase TiO₂ (21 nm) was administered (150 mg/kg/day) for 2 weeks followed by the aforementioned antioxidants either alone or in combination for 1 month. TiO₂NPs significantly increased serum liver function enzyme activities, liver coefficient and malondialdehyde levels in hepatic tissue. They also suppressed hepatic glutathione level and triggered an inflammatory response via the activation of macrophages and the enhancement of tumor necrosis factor-α and interleukin-6 levels. Moreover, the mRNA expression of nuclear factor-erythroid-2-related factor 2, nuclear factor kappa B and Bax was up-regulated whereas that of Bcl-2 was down-regulated following TiO₂NPs. Additionally, these NPs effectively activated caspase-3 and caused liver DNA damage. Oral administration of idebenone (200 mg/kg), carnosine (200 mg/kg) and vitamin E (100 mg/kg) alleviated the hazards of TiO₂NPs with the combination regimen showing a relatively higher

effect. The histopathological examination reinforced these findings. In conclusion, oxidative stress could be regarded as a key player in TiO₂NPs-induced liver injury. The study also highlights the anti-inflammatory and the anti-apoptotic potentials of these antioxidants against the detrimental effects of TiO₂NPs.

Keywords: Antioxidants; Apoptosis; Inflammation; Liver; Oxidative stress; Titanium dioxide nanoparticles.

Dept. of Clinical Pharmacy

229. Intravenous Fluids in Children and Young People: Summary Of Nice Guidance

Julie Neilson, Frank O'Neill, Dalia Dawoud and Peter Crean

The Bmj, 351 (8037): 30-33 (2015) IF: 17.455

Inappropriate use of intravenous fluids in children may have serious consequences. These include death or permanent neurological injury from hyponatraemia, hypovolaemia, and poor organ perfusion, as well as the risks of hypervolaemia, oedema, and heart failure. Children have different fluid requirements from adults, for whom specific guidance exists. This article summarises the most recent recommendations from the National Institute for Health and Care Excellence (NICE).

Keywords: Intravenous fluids; Children; Clinical guideline.

230. Diagnosis and Management of Type 1 Diabetes in Adults: Summary of Updated Nice Guidance

Stephanie A Amiel, Nancy Pursey, Bernard Higgins and Dalia Dawoud

The Bmj, 351 (8023): 31-33 (2015) IF: 17.445

Having type 1 diabetes reduces the life expectancy of adults in the United Kingdom by as much as 13 years. Despite incontrovertible evidence that good care reduces the risk of complications such as blindness, renal failure, and premature cardiovascular disease and death, as well as complications of treatment such as severe hypoglycaemia, fewer than 30% of UK adults with type 1 diabetes achieve current national treatment targets for glucose control.

The challenges of managing type 1 diabetes do not lessen after the age of 18 years. Since the publication of the 2004 National Institute for Health and Care Excellence (NICE) guideline, new technologies to achieve diabetic control have become available—for example, insulin analogues, new glucose meters, and real time subcutaneous continuous glucose monitoring systems.

The recent updated NICE guidance aims to support healthcare professionals and adults with type 1 diabetes to use these technologies optimally and to individualise targets and treatment regimens for greater lifestyle flexibility, with clear advice on education programmes, glucose monitoring, and insulin preparations. This article summarises the most recent recommendations from NICE on the diagnosis and management of type 1 diabetes in adults.

Keywords: Type 1 diabetes; Clinical guideline; Adults.

231. Early Hemostatic Responses to Trauma: Identified Using Hierarchical Clustering Analysis

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Journal Of Thrombosis and Haemostasis, 13(6): 978-988 (2015) IF: 5.72

Background: Trauma-induced coagulopathy is a complex multifactorial hemostatic response that is poorly understood. **OBJECTIVES:** To identify distinct hemostatic responses to trauma and identify key components of the hemostatic system that vary between responses.

Patients/Methods: A cross-sectional observational study of adult trauma patients at an urban level I trauma center emergency department was performed. Hierarchical clustering analysis was used to identify distinct clusters of similar subjects according to vital signs, injury/shock severity, and comprehensive assessment of coagulation, clot formation, platelet function, and thrombin generation.

Results: Among 84 total trauma patients included in the model, three distinct trauma clusters were identified. Cluster 1 (N = 57) showed platelet activation, preserved peak thrombin generation, plasma coagulation dysfunction, a moderately decreased fibrinogen concentration and normal clot formation relative to healthy controls. Cluster 2 (N = 18) showed platelet activation, preserved peak thrombin generation, and a preserved fibrinogen concentration with normal clot formation. Cluster 3 (N = 9) was the most severely injured and shocked, and showed a strong inflammatory and bleeding phenotype. Platelet dysfunction, thrombin inhibition, plasma coagulation dysfunction and a decreased fibrinogen concentration were present in this cluster. Fibrinolytic activation was present in all clusters, but was particularly increased in cluster 3. Trauma clusters were most noticeably different in their relative fibrinogen concentration, peak thrombin generation, and platelet-induced clot contraction. **Conclusions:** Hierarchical clustering analysis identified three distinct hemostatic responses to trauma. Further insights into the underlying hemostatic mechanisms responsible for these responses are needed.

Keywords: Trauma; Cluster analysis; TEG; Platelets.

232. Clot Formation is Associated with Fibrinogen and Platelet Forces in A Cohort of Severely-Injured Emergency Department Trauma Patients

Nathan J. White, Jason C. Newton, Erika J. Martin, Bassem M. Mohammed, Daniel Contaifer Jr., Jessica L. Bostic, Gretchen M. Brophy, Bruce D. Spiess, Anthony E. Pusateri, Kevin R. Ward, and Donald F. Brophy

Shock, 44 (1): 39-44 (2015) IF: 3.045

Introduction: Anticoagulation, fibrinogen consumption, fibrinolytic activation, and platelet dysfunction all interact to produce different clot formation responses after trauma. However, the relative contributions of these coagulation components to overall clot formation remain poorly defined. We examined for sources of heterogeneity in clot formation responses after trauma.

Methods: Blood was sampled in the emergency department from patients meeting trauma team activation criteria at an urban trauma center. Plasma prothrombin time of 18 s or longer was

used to define traumatic coagulopathy. Mean kaolin-activated thrombelastography (TEG) parameters were calculated and tested for heterogeneity using analysis of means. Discriminant analysis and forward stepwise variable selection with linear regression were used to determine if prothrombin time, fibrinogen, platelet contractile force (PCF), and D-dimer concentration, representing key mechanistic components of coagulopathy, each contribute to heterogeneous TEG responses after trauma.

Results: Of 95 subjects, 16% met criteria for coagulopathy. Coagulopathic subjects were more severely injured with greater shock and received more blood products in the first 8 h compared with noncoagulopathic subjects. Mean (SD) TEG maximal amplitude (MA) was significantly decreased in the coagulopathic group (57.5 [SD, 4.7] mm vs. 62.7 [SD, 4.7], t test $P < 0.001$). The MA also exceeded the ANOM predicted upper decision limit for the noncoagulopathic group and the lower decision limit for the coagulopathic group at $\alpha = 0.05$, suggesting significant heterogeneity from the overall cohort mean. Fibrinogen and PCF best discriminated TEG MA using discriminant analysis. Fibrinogen, PCF, and D-dimer were primary covariates for TEG MA using regression analysis.

Conclusions: Heterogeneity in TEG-based clot formation in emergency department trauma patients was linked to changes in MA. Individual parameters representing fibrin polymerization, PCFs, and fibrinolysis were primarily associated with TEG MA after trauma and should be the focus of early hemostatic therapies.

Keywords: Trauma; Fibrinogen; Platelets; TEG; Hemodyne; Clot.

233. Is Some Better Than None: are TEG and TGA Profiles Different in Severe FVIII-Deficient Patients with Inhibitors?

V. Salinas, R. Carmona, B. M. Mohammed, E. J. Martin, D. F. Brophy and G. Young

Haemophilia, 21(3): 398-404 (2015) IF: 2.603

Severe factor VIII (FVIII)-deficient patients with and without FVIII inhibitors cannot be distinguished using FVIII levels. The FVIII assay is sensitive to detect factor levels below 1%. While severe FVIII-deficient, non-inhibitor patients have FVIII < 1% they may retain unmeasurable residual factor activity. In contrast, inhibitor patients have a FVIII antibody that presumably fully eliminates FVIII activity. It is unknown whether thromboelastography (TEG) and thrombin generation assay (TGA) can differentiate between patients with FVIII < 1% with and without the presence of FVIII inhibitors. The primary objective was to discern whether TEG and TGA could differentiate between severe FVIII-deficient patients with and without the presence of FVIII inhibitors. A secondary objective was to correlate TEG and TGA to annualized bleeding rates. This observational study performed TEG and TGA in healthy volunteers (N = 15), severe FVIII-deficient (N = 15) and severe FVIII-deficient patients with inhibitors (N = 15). (Kaolin-activated TEG was better at differentiating reaction time (31.3 vs. 120 min respectively, $P = 0.004$) and kinetics time (6.1 vs. 23.1 min respectively, $P = 0.028$) between the non-inhibitor and inhibitor patients. TEG activated by tissue factor in plasma-containing corn trypsin inhibitor failed to differentiate groups. The TGA failed to differentiate peak thrombin, endogenous thrombin potential and lag time between groups. There was no

correlation between TEG and TGA with annualized bleeding rates. Kaolin-activated TEG, but not TGA, differentiated between severe FVIII-deficient patients with and without inhibitors. These assays did not find a correlation to annualized bleeding rate.

Keywords: FVIII; Hemophilia; TEG; TGA.

234. Laboratory Assessment of Warfarin Reversal with Global Coagulation Tests Versus International Normalized Ratio in Patients with Intracranial Bleeding

Stacy A. Voils, Erika J. Martin, Bassem M. Mohammed, Ahmad Bayrleed and Donald F. Brophy

Blood Coagulation and Fibrinolysis, 26 (4): 443-447 (2015) IF: 1.403

We assess the in-vivo relationship between international normalized ratio (INR) and global coagulation tests in patients with life-threatening bleeding who received prothrombin complex concentrate (PCC) for warfarin reversal. This was a prospective pilot study in adult patients with intracranial bleeding related to anticoagulation with warfarin. Thromboelastography (TEG), thrombin generation parameters and INR were assessed at baseline, 30 min, 2 and 24 h after PCC. Changes in laboratory parameters and relationship between INR and global coagulation tests were assessed over time. Eight patients mean [standard deviation (SD)] age 72 (16) were included and received mean (SD) dose of PCC 24 (5) units/kg. Four patients died during the study, all with INR values more than 1.5 thirty minutes after PCC. Mean (SD) INR was 3.0 (1.3) and decreased significantly to 1.8 (0.48) thirty minutes after PCC ($P < 0.01$). Baseline endogenous thrombin potential and thrombin peak were 890 nmol/min and 123 nmol and increased significantly to 1943 nmol/min ($P < 0.01$) and 301 nmol ($P < 0.01$) 30 min after PCC administration. Reaction (R)-time decreased significantly ($P = 0.02$), and maximum amplitude and overall coagulation index (CI) significantly increased during treatment ($P < 0.01$, respectively). Thrombin generation and TEG values corrected after PCC administration; however, INR did not fully correct. Patients that died tended to be older with prolonged INR values across the study period. INR and TEG values correlated well with thrombin generation before administration of PCC, but this relationship was lost afterward.

Keywords: Warfarin; Coagulation; TEG; INR.

235. Evaluation of A Protocol-based Intervention to Promote Timely Switching from Intravenous to Oral Paracetamol for Post-operative Pain Management: an Interrupted Time Series Analysis

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Journal of Evaluation in Clinical Practice, 21(6): 1081-1088 (2015) IF: 1.084

Rationale, aims and objectives Timely switching from intravenous to oral therapy ensures optimized treatment and efficient use of health care resources. Intravenous (IV) paracetamol is widely used for post-operative pain management but not always switched to the oral form in a timely manner,

leading to unnecessary increase in expenditure. This study aims to evaluate the impact of a multifaceted intervention to promote timely switching from the IV to oral form in the post-operative setting. **Methods** An evidence-based prescribing protocol was designed and implemented by the clinical pharmacy team in a single district general hospital in Egypt. The protocol specified the criteria for appropriate prescribing of IV paracetamol. Doctors were provided with information and educational sessions prior to implementation. A prospective, quasiexperimental study was undertaken to evaluate its impact on IV paracetamol utilization and costs. Data on monthly utilization and costs were recorded for 12 months before and after implementation (January 2012 to December 2013). Data were analysed using interrupted time series analysis. Results Prior to implementation, in 2012, total spending on IV paracetamol was 674 154.00 Egyptian Pounds (L.E.) (\$23 668.00). There was a non-significant ($P > 0.05$) downward trend in utilization (-32 ampoules per month) and costs [reduction of 632 L.E. (\$222) per month]. Following implementation, immediate decrease in utilization and costs ($P < 0.05$) and a trend change over the follow-up period were observed. Average monthly reduction was 26% (95% CI: 24% to 28%, $P < 0.001$). **Conclusion** A multifaceted, protocol-based intervention to ensure timely switching from IV-to-oral paracetamol achieved significant reduction in utilization and cost of IV paracetamol in the first 5 months of its implementation.

Keywords: Evaluation; Health economics; Interrupted time Series; Iv-To-oral; Paracetamol.

Dept. of Microbiology and Immunology

236. Mapping of Genetic Loci That Modulate Differential Colonization by Escherichia Coli O157:H7 TUV86-2 in Advanced Recombinant Inbred BXD Mice

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BMC Genomics, 16: 947-0 (2015) IF: 3.986

Background: Shiga toxin (Stx)-producing *E. coli* (STEC) are responsible for foodborne outbreaks that can result in severe human disease. During an outbreak, differential disease outcomes are observed after infection with the same STEC strain. One question of particular interest is why some infected people resolve infection after hemorrhagic colitis whereas others progress to the hemolytic uremic syndrome (HUS). Host age and infection dose have been implicated; however, these parameters do not appear to fully account for all of the observed variation in disease severity. Therefore, we hypothesized that additional host genetic factors may play a role in progression to HUS.

Methods and Results: To mimic the genetic diversity in the human response to infection by STEC, we measured the capacity of an O157:H7 outbreak isolate to colonize mouse strains from the advanced recombinant inbred (ARI) BXD panel. We first infected the BXD parental strains C57BL/6 J (B6) and DBA/2 J (D2) with either 86-24 (Stx2a+) or TUV86-2 (an Stx2a-negative isogenic mutant). Colonization levels were determined in an intact commensal flora (ICF) infection model. We found a significant difference in colonization levels between the parental B6 and D2 strains after infection with TUV86-2 but not with 86-24. This observation suggested that a host factor that may be masked by Stx2a affects O157:H7 colonization in some genetic

backgrounds. We then determined the TUV86-2 colonization levels of 24 BXD strains in the ICF model. We identified several quantitative trait loci (QTL) associated with variation in colonization by correlation analyses. We found a highly significant QTL on proximal chromosome 9 (12.5–26.7 Mb) that strongly predicts variation in colonization levels and accounts for 15–20 % of variance. Linkage, polymorphism and co-citation analyses of the mapped region revealed 36 candidate genes within the QTL, and we identified five genes that are most likely responsible for the differential colonization.

Conclusions: The identification of the QTL on chromosome 9 supports our hypothesis that individual genetic makeup affects the level of colonization after infection with STEC O157:H7.

Keywords: Q QTL mapping; E. coli; O157:H7; Hemorrhagic colitis; BXD strains; Systems genetics; Genetics of susceptibility to infection; Host-pathogen interaction; Genomic biomarkers; Bioinformatics.

Dept. of Pharmaceutical Technology and Industrial Pharmacy

237. Tri/Tetra-Block Co-Polymeric Nanocarriers as A Potential Ocular Delivery System of Lornoxicam: In-Vitro Characterization, and In-Vivo Estimation of Corneal Permeation

Alaa Hamed Salamaa and Rehab Nabil Shamma

International Journal of Pharmaceutics, 492: 28-39 (2015)
IF: 3.65

Polymeric micelles that can deliver drug to intended sites of the eye have attracted much scientific attention recently. The aim of this study was to evaluate the aqueous-based formulation of drug-loaded polymeric micelles that hold significant promise for ophthalmic drug delivery.

This study investigated the synergistic performance of mixed polymeric micelles made of linear and branched poly(ethylene oxide)-poly(propylene oxide) for the more effective encapsulation of lornoxicam (LX) as a hydrophobic model drug. The co-micellization process of 10% binary systems combining different weight ratios of the highly hydrophilic poloxamers; Synperonic1 PE/P84, and Synperonic1 PE/F127 and the hydrophobic poloxamine counterpart (Tetronic1 T701) was investigated by means of photon correlation spectroscopy and cloud point.

The drug-loaded micelles were tested for their solubilizing capacity towards LX. Results showed a sharp solubility increase from 0.0318 mg/mL up to more than 2.34 mg/mL, representing about 73-fold increase.

Optimized formulation was selected to achieve maximum drug solubilizing power and clarity with lowest possible particle size, and was characterized by ¹HNMR analysis which revealed complete encapsulation of the drug within the micelles.

Further investigations by histopathological and confocal laser studies revealed the non-irritant nature and good corneal penetrating power of the proposed nano-formulation.

Keywords: Ocular drug delivery; Single and mixed nanomicellar systems; Lornoxicam; Confocal laser scanning microscopy; Histopathological studies.

238. In-Vivo Evaluation of Clindamycin Release from Glyceryl Monooleate-Alginate Microspheres by Nir Spectroscopy

Amir Ibrahim Mohamed, Osama A.A. Ahmed, Suzan Amin, Omar Anwar Elkadi and Mohamed A. Kassem

International Journal of Pharmaceutics, 494: 127-135 (2015)
IF: 3.65

The purpose of this study was to use near-infrared (NIR) transmission spectroscopic technique to determine clindamycin plasma concentration after oral administration of clindamycin loaded GMO-alginate microspheres using rabbits as animal models. Lyophilized clindamycin-plasma standard samples at a concentration range of 0.001–10 µg/ml were prepared and analyzed by NIR and HPLC as a reference method. NIR calibration model was developed with partial least square (PLS) regression analysis. Then, a single dose in-vivo evaluation was carried out and clindamycin-plasma concentration was estimated by NIR. Over 24 h time period, the pharmacokinetic parameters of clindamycin were calculated for the clindamycin loaded GMO-alginate microspheres (F3) and alginate microspheres (F2), and compared with the plain drug (F1). PLS calibration model with 7-principal components (PC), and 8000–9200 cm⁻¹ spectral range shows a good correlation between HPLC and NIR values with root mean square error of cross validation (RMSECV), (root mean square error of prediction (RMSEP), and calibration coefficient (R²) values of 0.245, 1.164, and 0.9753, respectively, which suggests that NIR transmission technique can be used for drug-plasma analysis without any extraction procedure. F3 microspheres exhibited controlled and prolonged absorption T_{max} of 4.0 vs. 1.0 and 0.5 h; C_{max} of 2.37 ± 0.3 vs. 3.81 ± 0.8 and 5.43 ± 0.7 µg/ml for F2 and F1, respectively. These results suggest that the combination of GMO and alginate (1:4 w/w) could be successfully employed for once daily clindamycin microspheres formulation which confirmed by low C_{max} and high T_{max} values.

Keywords: Ca-alginate; Clindamycin HCl; Clindamycin Hcl (PubChem CID: 16051951); Glyceryl mono-oleate (GMO); Glyceryl monooleate (PubChem CID: 5283468); Near-infrared spectroscopy (NIR); Partial least squares regression (PLS); Sodium calcium alginate (PubChem CID: 6850754); Sustained release microspheres.

Dept. of Pharmacognosy

239. Diversity of Active Constituents in Cichorium Endivia and Cynara Cornigera Extracts

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Acta Biologica Hungarica, 66: 103-118 (2015) IF: 0.589

The present study was attempted to explore the phytochemical constituents of different extracts from Cynara cornigera and Cichorium endivia plant materials. The two study species are native in Egypt. Five different solvents, viz., aqueous, methylene chloride, petroleum ether, ethyl acetate, and n-butanol were used. Phytochemical analysis revealed the presence of phenols, flavonoids, sterols (stigmasterol and betasitosterol), terpenes (amyrin, ursolic and oleanolic acid), and hydrocarbons (n-alkane).

where the latter found in low amount. The ethyl acetate and water extracts of *C. cornigera* root showed lower mass fractions of phenolic compounds ranged from 20 to 81 g/100 g, and higher amounts in ethyl acetate extract of the inflorescences and butanol extract of the root where values ranged from 195 to 399 g/100 g. The β -sitosterol and stigmasterol are present in all plant extracts. Oleanolic and ursolic acids were detected in roots, leaves and inflorescences of *C. cornigera* and in *C. endivia* shoot. The ethyl acetate extracts from *C. cornigera* leaf and inflorescence attained higher chemical diversity than the other extracts. Alternately, sterols and triterpenes are the major constituents. The high chemical diversity of active constituents justifies the future potential use of the two species at commercial level.

Keywords: Egypt; Sterols; Flavonoids; Phenolic acids; Triterpenes.

240. Chemical Composition, Antiviral Against Avian Influenza (H5N1) Virus and Antimicrobial Activities of the Essential Oils of the Leaves and Fruits of *Fortunella Margarita*, Lour. Swingle, Growing in Egypt

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Journal of Applied Pharmaceutical Science, 5: 6-12 (2015)

Essential oils of the fresh leaves and fruits of *Fortunella margarita* Lour. Swingle (Family: Rutaceae) were prepared by hydrodistillation method, which resulted with 0.27 and 0.30% respectively. The resulted oils of both organs were analyzed by GC/MS which revealed the presence of twenty compounds in the leaves oil representing 86.96% of the oil, from which gurjunene, eudesmol and muurolene were identified as major compounds. The fruit's oil was found to contain fourteen compounds representing 77.77% of the oil, of which terpineol, t-carveol, limonene, muurolene and cadinene represented the major compounds. The antiviral activity of the essential oils of both leaves and fruits was tested against avian influenza-A virus (H5N1), and the results revealed higher potency of fruits oil. Moreover, the essential oils of the leaves and fruits were investigated for their antimicrobial and antifungal activities. The oil of the leaves showed antimicrobial activity higher than that of the fruits at dilution (1:50 v/v (against *Bacillus subtilis*, *Staphylococcus aureus*, *Sarcina lutea* and *Streptococcus faecalis*, also it has a moderate activity against *Escherichia coli*, *Klebsilla pneumonia* and *Pseudomonas aeruginosa*. On the other hand, the antifungal activity of the leaves and fruits revealed that the fruits exhibited higher activity than that of the leaves against *Aspergillus niger* and *Candida albicans*.

Keywords: *Fortunella margarita* lour. swingle; Rutaceae; Essential oil; Antiviral; Antimicrobial.

Dept. of Pharmacology and Toxicology

241. Clinical significance of serum interleukin-23 and A/G gene (rs17375018) polymorphism in Behçets disease: Relation to neuro-Behçet, uveitis and disease activity

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Joint Bone Spine, 82(3):213-215 (2015) IF: 2.901

Lipopolysaccharide (LPS), a component of the outer membrane

Keywords: A/G gene (rs17375018) polymorphism; Behçets disease; Disease activity; Interleukin-23; Neuro-Behçet's; Uveitis.

242. Pretreatment with Magnesium Ameliorates Lipopolysaccharideinduced Liver Injury in Mice

Dalia M. El-Tanbouly, Rania M. Abdelsalam, Amina S. Attia and Mohamed T. Abdel-Aziz

Pharmacological Reports, 67: 914-920 (2015) IF: 1.928

Background: Lipopolysaccharide (LPS), a component of the outer membrane of Gram-negative bacteria, is involved in the pathogenesis of sepsis. LPS administration induces systemic inflammation that mimics many of the initial clinical features of sepsis and has deleterious effects on several organs including the liver and eventually leading to septic shock and death. The present study aimed to investigate the protective effect of magnesium (Mg), a well known cofactor in many enzymatic reactions and a critical component of the antioxidant system, on hepatic damage associated with LPS-induced endotoxemia in mice.

Methods: Mg (20 and 40mg/kg, po) was administered for 7 consecutive days. Systemic inflammation was induced 1h after the last dose of Mg by a single dose of LPS (2mg/kg, ip) and 3h thereafter plasma was separated, animals were sacrificed and their livers were isolated.

Results: LPS-treated mice suffered from hepatic dysfunction revealed by histological observation, elevation in plasma transaminases activities, C-reactive protein content and caspase-3, a critical marker of apoptosis. Liver inflammation was evident by elevation in liver cytokines contents (TNF- α and IL-10) and MPO activity. Additionally, oxidative stress was manifested by increased liver lipoperoxidation, glutathione depletion, elevated total nitrate/nitrite (NOx) content and glutathione peroxidase (GPx) activity. Pretreatment with Mg largely mitigated these alternations.

Conclusion: Pretreatment with Mg protects the liver from the acute injury which occurs shortly after septicemia.

Keywords: Inflammation; LPS; Liver damage; Magnesium; Septicemia.

243. Pinocembrin Attenuates Hippocampal Inflammation, Oxidative Perturbations and Apoptosis in A Rat Model of Global Cerebral Ischemia Reperfusion

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Pharmacological Reports, 67: 115-122 (2015) IF: 1.928

Background: Pinocembrin is a major flavonoid molecule isolated from honey and propolis. It has versatile pharmacological and biological activities including antimicrobial, anti-inflammatory, antioxidant, and anticancer activities as well as neuroprotective effects against cerebral ischemic injury. The purpose of the current study was to

determine the possible mechanisms of neuroprotection elicited by pinocembrin with specific emphasis on chronic prophylactic use before the induction of global cerebral ischemia reperfusion.

Methods: Global cerebral ischemia–reperfusion (I/R) was induced by bilateral carotid artery occlusion for 15 min followed by 60 min reperfusion period. Animals were randomly allocated into 3 groups (n = 28): Sham operated, I/R control and rats treated with pinocembrin (10 mg/kg, po) daily for 7 days then I/R was induced 1 h after the last dose of pinocembrin. After reperfusion rats were killed by decapitation, brains were removed and both hippocampi separated and the following biochemical parameters were estimated; lactate dehydrogenase activity, oxidative stress markers (lipid peroxides, nitric oxide and reduced glutathione), inflammatory markers (myeloperoxidase, tumor necrosis factor α , nuclear factor kappa-B, interleukin-6 and interleukin-10), apoptotic biomarkers (caspase 3 and cytochrome C), neurotransmitters (glutamate, gamma aminobutyric acid) and infarct size were assessed.

Results: Pinocembrin ameliorated damage induced by I/R through suppressing oxidative stress, inflammatory and apoptotic markers as well as mitigating glutamate and lactate dehydrogenase activity. One of the more significant findings to emerge from this study is that pinocembrin normalized the infarct size elevated by I/R.

Conclusions: Pinocembrin showed a neuroprotective effects through antioxidant, anti-inflammatory and antiapoptotic mechanisms.

Keywords: Apoptosis; Inflammation; Ischemia/reperfusion; Oxidative stress; Pinocembrin.

The National Cancer Institute

Dept. of Anesthesia and Intensive Care and Pain Healing

244. The Efficacy and Safety of Combined Pulsed and Conventional Radiofrequency Treatment of Refractory Cases of Idiopathic Trigeminal Neuralgia: A Retrospective Study

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Journal of Clinical Pathology, 1-7 (2015) IF: 1.176

Purpose We conducted a retrospective study to evaluate the efficacy and duration of pain relief for idiopathic trigeminal neuralgia (TN) patients after continuous radiofrequency (CRF) combined with pulsed radiofrequency (PRF) treatment of the Gasserian ganglion (GG).

Methods Twenty-one patients were treated with pulsed RF for 6 min repeated after rotating the needle tip by 180°, at a pulse width of 10 ms and at 45 °C. This was followed by conventional RF at 60 °C for 60 s, repeated after needle rotation by 180°, then finally at 65 °C for 60 s also repeated after needle rotation by 180°. Patients were assessed for pain intensity and consumption of analgesics at baseline and 7 days, 1 month, 6 months, and 12 months after the procedure. The patients' global impression of change (PGIC) scale was also assessed 7 days, 1 month, 6 months, and 12 months after the procedure. The incidence of facial dyesthesia was evaluated 7 days after the procedure.

Results Excellent pain relief was achieved for 15 of 21 patients (71.4 %) after 1 week, 1 month, and 6 months. and for 14 of 21 patients (66.7 %) after 12 months. Consumption of analgesics was significantly reduced for more than

6 months, and for fifteen patients the PGIC scale result was very much improved 12 months after the procedure compared with baseline. Eighteen of the 21 patients (85.7 %) experienced facial dyesthesia 1 week after the procedure.

Conclusion Excellent pain relief and reduced consumption of analgesics for more than 6 months were observed in patients who received PRF combined with CRF to the GG for treatment of idiopathic TN.

Keywords: Idiopathic trigeminal neuralgia; Pulsed radiofrequency; Conventional radiofrequency.

Dept. of Clinical Pathology

245. Clinical Utility of Simple Non-Invasive Liver Fibrosis Indices for Predicting Hepatocellular Carcinoma (Hcc) Among Egyptian Patients

Iman Attia Abdelgawad

Journal of Clinical Pathology, 1-7 (2015) IF: 2.915

Serological indices for liver fibrosis have been widely used to estimate liver fibrosis, but as far as we know they have not been tested to predict hepatocellular carcinoma (HCC). Our aim is to study the clinical usefulness of some simple non-invasive fibrosis indices in the prediction of HCC among Egyptian patients. **Methods** Ninety patients with HCC who were presented to the National Cancer Institute, Cairo University, were included in this study, together with 30 patients with cirrhosis as a benign control group and 30 apparently healthy

volunteers as a normal control group. FIB4 Score, Aspartate Aminotransferase (AST) to Platelet (PLT) Ratio Index (APRI) Score, AST/PLT ratio, Age/PLT Index and AST/alanine aminotransferase indices were calculated for all patients and controls and were tested for their clinical use to predict HCC. **Results** Double combination between alpha-fetoprotein and FIB4 Score when either one was abnormal showed the highest diagnostic performance between the HCC group and the cirrhosis and control groups with sensitivity and specificity of (93% and 96%), respectively, whereas the APRI Score was the best to differentiate between the cirrhosis and control groups with sensitivity and specificity of 100% each. **Conclusions** Using some simple non-costly indices can accurately predict HCC and differentiate it from cirrhosis and normal control cases among Egyptian patients, it can also differentiate cirrhosis from normal controls, so can be used as diagnostic and screening tools for both HCC and liver cirrhosis among the Egyptian population. **Keywords:** HCC; Liver fibrosis indices; Clinical utility.

Dept. of Medical Oncology

246. Vorinostat in Patients with Advanced Malignant Pleural Mesothelioma who Have Progressed on Previous Chemotherapy (Vantage-014): A Phase 3, Double-Blind, Randomised, Placebo-Controlled Trial

Lee M Krug, Hedy L Kindler, Hilary Calvert, Christian Manegold, Anne S Tsao, Dean Fennell, Ronny Öhman, Ruth Plummer, Wilfried E E Eberhardt, Kazuya Fukuoka, Rabab M Gaafar, Jean-Jacques Lafi tte, Gunnar Hillerdal, Quincy Chu, Wieneke A Buikhuizen, Gregory M Lubiniecki, Xing Sun, Margaret Smith and Paul Baas

The Lancet Oncology, 16: 447-456 (2015) IF: 24.69

Background: Vorinostat is a histone deacetylase inhibitor that changes gene expression and protein activity. On the basis of the clinical benefit reported in patients with malignant pleural mesothelioma treated in a phase 1 study of vorinostat, we designed this phase 3 trial to investigate whether vorinostat given as a second-line or third-line therapy improved patients' overall survival.

Methods: This double-blind, randomised, placebo-controlled trial was done in 90 international centres. Patients with measurable advanced malignant pleural mesothelioma and disease progression after one or two previous systemic regimens were eligible. After stratification for Karnofsky performance status, histology, and number of previous chemotherapy regimens, patients were randomly assigned (1:1) by use of an interactive voice response system with a block size of four to either treatment with vorinostat or placebo. Patients received oral vorinostat 300 mg (or matching placebo) twice daily on days 1, 2, 3, 8, 9, 10, 15, 16, and 17 of a 21-day cycle. The primary endpoints were overall survival and safety and tolerability of vorinostat. The primary efficacy comparison was done in the intention-to-treat population, and safety and tolerability was assessed in the treated population. This trial is registered with ClinicalTrials.gov, number NCT00128102. **Findings** From July 12, 2005, to Feb 14, 2011, 661 patients were enrolled and randomly assigned to receive either vorinostat (n=329) or placebo (n=332) and included in the intention-to-treat analysis. Median overall survival for vorinostat was 30.7 weeks (95% CI 26.7–36.1) versus 27.1 weeks (23.1–31.9) for placebo

(hazard ratio 0.98, 95% CI 0.83–1.17, $p=0.86$). The most common grade 3 or worse adverse events for patients treated with vorinostat were fatigue or malaise (51 [16%] patients in the vorinostat group vs 25 [8%] in the placebo group) and dyspnoea (35 [11%] vs 45 [14%]). Interpretation In this randomised trial, vorinostat given as a second-line or third-line therapy did not improve overall survival and cannot be recommended as a therapy for patients with advanced malignant pleural mesothelioma.

247. Maintenance Pazopanib Versus Placebo in Non-Small Cell Lung Cancer Patients Non-Progressive After First Line Chemotherapy: A Double Blind Randomised Phase Iii Study of the Lung Cancer Group, Eortc 08092 (Eudract: 2010-018566-23, Nct01208064)

Mary E.R. O'Brien, Rabab Gaafar, Baktiar Hasan, Jessica Menis, Tanja Cuferd, Sanjay Popat, Penella J. Woll, Veerle Surmont, Vassilis Georgoulis, Ana Montesh, Fiona Blackhall, Ivo Hennig, Gerald Schmid-Bindertk and Paul Baas

European Journal of Cancer, 51: 1511-1528 (2015) IF: 5.417

Background: Switch maintenance is an effective strategy in the treatment of advanced Non-Small Cell Lung Cancer (NSCLC). Pazopanib is an oral, multi-targeted tyrosine kinase inhibitor (TKI). EORTC 08092 evaluated pazopanib given as maintenance treatment following standard first line platinum-based chemotherapy in patients with advanced NSCLC.

Methods: Patients with non-progressive disease after 4–6 cycles of chemotherapy were randomised to receive either pazopanib 800 mg/day or matched placebo until progression or unacceptable toxicity. The primary end-point was overall survival and secondary end-points were progression-free survival (PFS) and safety.

Results: A total of 600 patients were planned to be randomised. The trial was prematurely stopped following an early interim analysis, after 102 patients were randomised to pazopanib ($n = 50$) or placebo ($n = 52$). Median age was 64 years in both arms. Median overall survival was 17.4 months for pazopanib and 12.3 months for placebo (adjusted hazard ratio (HR) 0.72 [95% confidence interval (CI) 0.40–1.28]; $p = 0.257$). Median PFS was 4.3 months versus 3.2 months (HR 0.67, [95% CI 0.43–1.03], $p = 0.068$). PFS rates at 4 months were 56% and 45% respectively. The majority of treatment-related adverse events (AEs) were grade 1–2. Grade 3–4 AEs (pazopanib versus placebo) were hypertension (38% versus 8%), neutropenia (8% versus 0%), and elevated SGPT (6% versus 0%). Of the patients randomised to pazopanib, 22% withdrew due to a treatment-related AE. **Conclusions:** Switch maintenance with pazopanib following platinum-based chemotherapy in advanced NSCLC patients had limited side-effects. This study was stopped due to lack of efficacy by stringent criteria for PFS at a futility interim analysis

Keywords: Advanced; Double blind; Maintenance; NSCLC; Pazopanib; Phase III.

248. Magnitude of The Benefit of Progression-Free Survival as A Potential Surrogate Marker in Phase 3 Trials Assessing Targeted Agents in Molecularly Selected Patients with Advanced Non-small Cell Lung Cancer: Systematic Review.

Katsuyuki Hotta, Yuka Kato, Natasha Leighl, Nagio Takigawa, Rabab Mohamed Gaafar, Hiroe Kayatani, Taizo Hirata, Kadoaki Ohashi, Toshio Kubo Masahiro Tabata, Mitsune Tanimoto and Katsuyuki Kiura

Plos One, 10: 1-11 (2015) IF: 3.234

Background: In evaluation of the clinical benefit of a new targeted agent in a phase 3 trial enrolling molecularly selected patients with advanced non-small cell lung cancer (NSCLC), overall survival (OS) as an endpoint seems to be of limited use because of a high level of treatment crossover for ethical reasons. A more efficient and useful indicator for assessing efficacy is needed.

Methods and Findings : We identified 18 phase 3 trials in the literature investigating EGFR-tyrosine kinase inhibitor (TKIs) or ALK-TKIs, now approved for use to treat NSCLC, compared with standard cytotoxic chemotherapy (eight trials were performed in molecularly selected patients and ten using an “all-comer” design). Receiver operating characteristic analysis was used to identify the best threshold by which to divide the groups. Although trials enrolling molecularly selected patients and all-comer trials had similar OS-hazard ratios (OS-HRs) (0.99 vs. 1.04), the former exhibited greater progression-free survival-hazard ratios (PFS-HR) (mean, 0.40 vs. 1.01; $P<0.01$). A PFS-HR of 0.60 successfully distinguished between the two types of trials (sensitivity 100%, specificity 100%). The odds ratio for overall response was higher in trials with molecularly selected patients than in all-comer trials (mean: 6.10 vs. 1.64; $P<0.01$). An odds ratio of 3.40 for response afforded a sensitivity of 88% and a specificity of 90%.

Conclusion: The notably enhanced PFS benefit was quite specific to trials with molecularly selected patients. A PFS-HR cutoff of ≤ 0.6 may help detect clinical benefit of molecular targeted agents in which OS is of limited use, although desired threshold might differ in an individual trial.

Keywords: Magnitude potential surrogate.

249. A Mini Review on Cancer of Unknown Primary Site: A Clinical Puzzle for the Oncologists

Nicholas Pavlidis, Hussein Khaled and Rabab Gaafar

Journal of Advanced Research, 6: 375-382 (2015) IF: 3

Cancer of unknown primary (CUP) is a well recognized clinical syndrome, accounting for 3-5% of all malignancies. It is characterized as a disease with an early dissemination of metastases without a primary detected site after extensive laboratory and clinical investigations. CUP is divided into the favorable and unfavorable groups based on histopathological and clinical manifestations. Adenocarcinoma of various differentiations is the commonest histopathological subtype. Favorable groups are treated with local or systemic treatment and some of them are enjoying long-term survival. On the contrary, unfavorable groups are treated with empirical chemotherapy having usually a dismal prognosis. Gene-profiling

microarray diagnosis has a high diagnostic sensitivity, but its predictive or prognostic value remains uncertain.

Keywords: Cancer; Diagnosis; Treatment; Unknown primary.

250. Pesticide, Gene Polymorphisms and Bladder Cancer Among Egyptian Agricultural Workers

Sania Amr, Rebecca Dawson, Doa'a A. Saleh, Laurence S. Magder, Diane Marie St. George, Mai El-Daly, Katherine Squib, Nabil N. Mikhail, Mohamed Abdel-Hamid, Hussein Khaled and Christopher A. Loffredo

Archives of Environmental and Occupational Health, 70: 19-26 (2015) IF: 0.932

We examined the associations between pesticide exposure, genetic polymorphisms for NAD(P)H:quinone oxidoreductase I (NQO1) and superoxide dismutase 2 (SOD2), and urinary bladder cancer risk among male agricultural workers in Egypt. We used logistic regression to analyze data from a multi-center case-control study and estimate adjusted odds ratio (OR) and 95% CI (confidence interval). Exposure to pesticides was associated with increased bladder cancer risk (1.68 (1.23–2.29)) in a dose-dependent manner. The association was slightly stronger for urothelial (1.79 (1.25–2.56)) than for squamous cell carcinoma (1.55 (1.03–2.31)), and among participants with combined genotypes for low NQO1 and high SOD2 (2.14 (1.19–3.85)) activities as compared to those with high NQO1 and low SOD2 genotypes (1.53 (0.73–3.25)). In conclusion, among male agricultural workers in Egypt, pesticide exposure is associated with bladder cancer risk and possibly modulated by genetic polymorphism.

Keywords: Pesticides; Bladder cancer; Gene polymorphism; Epidemiology; Egypt; Agricultural workers.

Dept. of Radiation Oncology

251. Iaea-Hypox. A Randomized Multicenter Study of the Hypoxic Radiosensitizer Nimorazole Concomitant with Accelerated Radiotherapy in Head and Neck Squamous Cell Carcinoma

Mohamed A. Hassan Metwally, Rubina Ali, Maire Kuddu, Tarek Shouman, Primož Stojan, Kashif Iqbal, Rajiv Prasad f, Cai Grau and Jens Overgaard

Radiotherapy and Oncology, 116: 15-20 (2015) IF: 4.363

Purpose: To test the hypothesis that radiotherapy (RT) of head and neck squamous cell carcinoma (HNSCC) can be improved by hypoxic modification using nimorazole (NIM) in association with accelerated fractionation.

Materials and methods: The protocol was activated in March 2012 as an international multicenter randomized trial in patients with HNSCC. Tumors were treated to a dose of 66–70 Gy, 33–35 fractions, 6 fractions per week. NIM was administered in a dose of 1.2 g per m², 90 min before the first daily RT fraction. The primary endpoint was loco-regional failure. The trial was closed prematurely by June 2014 due to poor recruitment. An associated quality assurance program was performed to ensure the consistency of RT with the protocol guidelines.

Results: The trial was dimensioned to include 600 patients in 3 years, but only 104 patients were randomized between March 2012 and May 2014 due to the inability to involve three major

centers and the insufficient recruitment rate from the other participating centers. Twenty patients from two centers had to be excluded from the analysis due to the unavailability of the follow-up data. Among the remaining 84 patients, 82 patients were evaluable (39 and 43 patients in the RT + NIM and the RT-alone arms, respectively). The treatment compliance was good with only six patients not completing the full planned RT course, and 31 patients (79%) out of 39 allocated for NIM, achieving at least 90% of the prescribed drug dose. At the time of evaluation, 40 patients had failed to achieve persistent loco-regional tumor control, and a total of 45 patients had died. The use of NIM improved the loco-regional tumor control with an 18 month post-randomization cumulative failure rate of 33% versus 51% in the control arm, yielding a risk difference of 18% (CI 3% to 39%; P = 0.10). The corresponding values for overall death was 43% versus 62%, yielding a risk difference of 19% (CI 3% to 42%; P = 0.10). Sixteen patients, out of 55 patients analyzed for hypoxic gene expression, were classified as having more hypoxic tumors. Such patients, if treated with RT alone, had a higher loco-regional tumor failure rate as compared to the rest of the patients with known hypoxic status (P = 0.05).

Conclusion: Although the trial was incomplete and suffered from a small number of patients, the results suggested an improvement in loco-regional tumor control and overall survival in patients with advanced HNSCC given the hypoxic modifier NIM in addition to accelerated fractionation RT. However, the trial also revealed that conducting multicenter and multinational study combining drug and RT in developing countries may suffer from uncontrolled and unsolvable problems.

Keywords: Clinical trials; Accelerated radiotherapy; Hypoxic Radiosensitization; Hnscc; Hypoxia; Nimorazole.

252. Radiotherapy Quality Assurance of the IAEA-Hypox Trial of the Accelerated Radiotherapy in the Treatment of Head and Neck Squamous Cell Carcinoma With or Without the Hypoxic Radiosensitizer Nimorazole

Mohamed A. Hassan Metwally, Rubina Ali, Maire Kuddu, Tarek Shouman, Primož Stojan, Jens Overgaard and Cai Grau

Acta Oncologica, Early Online: 1-4 (2015) IF: 2.997

Radiotherapy quality assurance (RTQA) programs attempt to validate the assumption that all patients who are treated with radiotherapy (RT) in a clinical trial have received uniform treatment according to the protocol guidelines, and to quantify the extent of any deviations from these guidelines. Thus, RTQA measures are used as a tool to prospectively standardize treatment or to check retrospectively the treatment compliance to guidelines in clinical trials [1]. Such assumption of treatment uniformity requires a precise and clear definition of RT treatment guidelines in the trial protocol [2].

253. Uterine Perforation and its Dosimetric Implications in Cervical Cancer High-Dose-Rate Brachytherapy

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Journal of Contemporary Brachytherapy, 7: 41-47 (2015) IF: 1.284

Purpose: To retrospectively assess the incidence of sub-serosal and uterine perforation of intra-uterine tandem in intracavitary high-dose-rate (HDR) brachytherapy for cervical cancer, and to evaluate its dosimetric implications on computed tomography (CT)-based treatment planning.

Material and Methods: Computed tomography images and brachytherapy plans of cervical cancer patients treated from February 2006 to December 2012 were reviewed for sub-optimal implants (sub-serosal and uterine perforation), and their correlation with cancer FIGO stage and patients' age. For each patient, the plans showing sub-optimal insertion of intra-uterine tandem were analyzed and compared to plans with adequate insertion. The difference in dose coverage of clinical-target-volume (CTV) and variation of the dose delivered to organs-at-risk (OARs) rectum and bladder were evaluated.

Results: A total of 231 brachytherapy plans for 82 patients were reviewed. We identified 12 (14.6%) patients and 14 (6%) applications with uterine perforation, and 12 (14.6%) patients and 20 (8.6%) applications with sub-serosal insertion of tandem. Data analysis showed that advanced stage correlates with higher incidence of sub-optimal implants ($p = 0.005$) but not the age ($p = 0.18$). Dose-volume-histograms (DVHs) analysis showed large variations for CTV dose coverage: D90 significantly decreased with average of $-115.7\% \pm 134.9\%$ for uterine perforation and $-65.2\% \pm 82.8\%$ for sub-serosal insertion ($p = 0.025$). The rectum and bladder dose assessed by D2cc increased up to 70.3% and 43.8%, respectively, when sub-optimal insertion of uterine tandem occurred.

Conclusions: We report a low incidence of uterine perforation and sub-serosal insertion of uterine tandem in intracavitary HDR brachytherapy for cervical cancer. However, the effects on treatment plan dosimetry can be considerably detrimental. Therefore, we recommend image-guided insertion, at least for the challenging cases.

Keywords: Cervix brachytherapy; Cervical cancer; Uterine perforation.

254. Lymph Node Ratio May Predict Relapse Free Survival and Overall Survival in Patients with Stage II & III Colorectal Carcinoma

Jamal Zekri, Imran Ahmad, Ehab Fawzy, Tawfik Elkhodary, Aboelkhair Al-Gahmi, Ashraf Hassouna, Mohamed E El Sayed, Jalil Ur Rehman and Bakr Bin Sadiq

Hepato-Gastroenterology, 62: 291-294 (2015) IF: 0.928

Background/Aims: Lymph node ratio (LNR) defined as the number of lymph nodes (LNs) involved with metastases divided by number of LNs examined, has been shown to be an independent prognostic factor in breast, stomach and various other solid tumors. Its significance as a prognostic determinant in colorectal cancer (CRC) is still under investigation. This study investigated the prognostic value of LNR in patients with resected CRC.

Methodology: We retrospectively examined 145 patients with stage II & III CRC diagnosed and treated at a single institution during 9 years period. Patients were grouped according to LNR in three groups. Group 1; $LNR < 0.05$, Group 2; $LNR = 0.05-0.19$ & Group 3 > 0.19 . Chi square, life table analysis and multivariate Cox regression were used for statistical analysis.

Results: On multivariate analysis, number of involved LNs (NILN) (HR = 1.15, 95% CI 1.055-1.245; $P = 0.001$) and pathological T stage ($P = 0.002$) were statistically significant

predictors of relapse free survival (RFS). LNR as a continuous variable (but not as a categorical variable) was statistically significant predictor of RFS ($P = 0.02$). LNR was also a statistically significant predictor of overall survival (OS) ($P = 0.02$).

Conclusion: LNR may predict RFS and OS in patients with resected stage II & III CRC. Studies with larger cohorts and longer follow up are needed to further examine and validate the prognostic value of LNR.

Keywords: Colon cancer; Rectal cancer; Lymph node metastasis.

Dept. of Tumor Biology

255. Inhibition of Topoisomerase II α Sensitizes FaDu Cells to Ionizing Radiation by Diminishing DNA Repair

Ekram M. Saleh

Tumor Biology, 36: 8985-8992 (2015) IF: 3.611

Despite the high efficiency of ionizing radiation (IR) to inactivate malignant tumours in general, an appreciable number of individual patients cannot be cured by standard IR. Head and neck tumours are not likely to be cured even by high-dose radiotherapy or chemotherapy. Accordingly, combined therapy is one of the most applicable strategies. Topoisomerase II α is a ubiquitous enzyme that removes knots and tangles from the genetic material by generating and subsequently resealing of transient double-strand breaks. Due to its unique mechanism of action, topoisomerase II α is the target of many chemotherapeutic agents such as etoposide. The aim of the present study is to examine the effect of inhibiting topoisomerase II α by etoposide on the response of squamous cell carcinoma to IR. Results of the present study demonstrated a radiosensitizing effect for the topoisomerase II α inhibitor etoposide on exponentially growing squamous cell carcinoma (FaDu) cell line especially at low radiation doses. This effect was found to be due to inhibition, by etoposide, of the repair of radiation-induced DNA damage. Cell cycle studies showed that the concentration of etoposide that sensitized the cells to radiation had no effect on the distribution of cells at different phases of the cell cycle. Synchronization of FaDu cells in different cell cycle phases revealed that proliferating G1 and G2 cells are responsible for sensitization of cells at low doses of ionizing radiation. It might, therefore, be concluded that topoisomerase II enzyme may be involved in the repair of radiation-induced DNA damage and consequently its inhibition constitute a strategy for sensitizing tumour cells to ionizing radiation.

Keywords: DNA repair; Double-strand breaks; Etoposide; FaDu cells; Ionizing radiation; Topoisomerase II α .

256. Epigenetics and miRNA as Predictive Markers and Targets for Lung Cancer Chemotherapy

Raafat A El-Awady, Fatema Hersi, Hala Al-Tunaiji, Ekram M Saleh, Abdel-Hady A Abdel-Wahab, Amer Al Homssi, Mousa Suhail, Ahmed El-Serafi and Taleb Al-Tel

Cancer Biology and Therapy, 16(7): 1056-1070 (2015) IF: 3.072

Lung cancer cells show inherent and acquired resistance to chemotherapy. The lack of good predictive markers/ novel

targets and the incomplete understanding of the mechanisms of resistance limit the success of lung cancer response to chemotherapy. In the present study, we used an isogenic pair of lung adenocarcinoma cell lines; A549 (wild-type) and A549DOX11 (doxorubicin resistant) to study the role of epigenetics and miRNA in resistance/response of non-small cell lung cancer (NSCLC) cells to doxorubicin. Our results demonstrate differential expression of epigenetic markers whereby the level of HDACs 1, 2, 3 and 4, DNA methyltransferase, acetylated H2B and acetylated H3 were lower in A549DOX11 compared to A549 cells. Fourteen miRNAs were dys-regulated in A549DOX11 cells compared to A549 cells, of these 14 miRNAs, 4 (has-mir-1973, 494, 4286 and 29b-3p) have shown 2.99 – 4.44 fold increase in their expression. This was associated with reduced apoptosis and higher resistance of A549DOX11 cells to doxorubicin and etoposide. Sequential treatment with the epigenetic modifiers trichostatin A or 5-aza-2'-deoxycytidine followed by doxorubicin resulted in: (i) enhanced sensitivity of both cell lines to doxorubicin especially at low concentrations, (ii) enhanced doxorubicin-induced DNA damage in both cell lines, (iii) dysregulation of some miRNAs in A549 cells. In conclusion, A549DOX11 cells resistant to DNA damaging drugs have epigenetic profile and miRNA expression different from the sensitive cells. Moreover, epigenetic modifiers may reverse the resistance of certain NSCLC cells to DNA damaging agents by enhancing induction of DNA damage. This may open the door for using epigenetic profile/miRNA expression of some cancer cells as resistance markers/targets to improve response of resistant cells to doxorubicin and for the use of combination doxorubicin/epigenetic modifiers to reduce doxorubicin toxicity.

Keywords: 5-aza-2'-deoxycytidine; 5AZA, 5-aza-2'-deoxycytidine; 5mc, 5-methyl cytosine; BSA, bovine serum albumin; DMSO, dimethyl sulfoxide; DNMT, DNA methyltransferase; HAT, histone acetyl transferase; HDAC; HDAC, histone deacetylase; NSCLC, non-small cell lung cancer; PBS, phosphate-buffered saline; SCLC, small-cell lung cancer; TSA, trichostatin A; doxorubicin; epigenetics; miRNA; trichostatin A.

Faculty of Physical Therapy

Dept. of Physical Therapy for Neuromuscular Disorder

257. Early Postural Changes in Individuals with Idiopathic Parkinson'S Disease

Mohamed Elsayed Khallaf and Eman Elsayed Fayed

Parkinson's Disease, (2015) IF: 2.01

Background and Objectives: Postural changes are frequent and disabling complications of Parkinson's disease (PD). Many contributing factors have been evident either related to disease pathology or to adaptive changes. This study aimed at studying the postural changes in subjects with Parkinson's disease and its relation to duration of illness and disease severity.

Methods: Eighteen patients with PD and 18 healthy matched volunteers represented the sample of the study. The patients were at stage 1 or 1.5 according to the Modified Hoehn and Yahr Staging with duration of illness between 18 and 36 months. Three-dimensional analysis of the back surface was conducted to explore the postural changes in the sagittal and frontal planes in both the patients and the healthy subjects.

Results: Kyphotic angle, lordotic angle, fleche cervicale, fleche lombaire, scoliotic angle, and associated vertebral rotation and pelvic obliquity were significantly increased in patients with PD compared to the healthy subjects ($P \leq 0.05$). There was no association between the measured postural changes and duration of illness as well as the severity of the IPD ($P < 0.05$).

Conclusion: Postural changes start in the early stages of idiopathic PD and they have no relationship to the duration of illness and disease severity.

Keywords: Parkinson's disease-posture; Kyphotic angle; Scoliotic angle.

258. Effect of shoulder girdle strengthening on trunk alignment in patients with stroke

Amina Awad, Hussien Shaker, Wael Shendy and Manal Fahmy

J Phys Ther Sci. 27(7): 2195–2200 (2015) IF: 0.392

[Purpose] This study investigated the effect of shoulder girdle strengthening, particularly the scapular muscles, on poststroke trunk alignment. [Subjects and Methods] The study involved 30 patients with residual hemiparesis following cerebrovascular stroke. Patient assessment included measuring shoulder muscle peak torque, scapular muscles peak force, spinal lateral deviation angle, and motor functional performance. Patients were randomly allocated either to the control group or the study group and received an 18-session strengthening program including active resisted exercises for shoulder abductors and external rotators in addition to trunk control exercises. The study group received additional strengthening exercises for the scapular muscles. [Results] The two groups showed significant improvement in strength of all shoulder and scapular muscles, with higher improvement in the study group. Similarly, the lateral spinal deviation angles significantly improved in both groups, with significantly higher improvement in the study group. Transfer activity, sitting balance, upper limb functions, and hand movements significantly improved in the two groups, with higher improvement in the latter two functions in the study group. [Conclusion] Strengthening of shoulder girdle muscles, particularly scapular muscles, can significantly contribute to

improving the postural alignment of the trunk in patients with poststroke hemiparesis.

Keywords: Stroke; Scapular muscles strengthening; Lateral trunk alignment.

Dept. of Physical Therapy for Basic Science

259. Changes in Muscular Activity and Lumbosacral Kinematics in Response to Handling Objects of Unknown Mass Magnitude

Walaa Elsayed, Ahmed Farrag, Mohsen El-Sayyad and William Marras

Human Movement Science, 40: 315-325 (2015) IF: 1.598

The aim of this study was to evaluate the main and interaction effects of mass knowledge and mass magnitude on trunk muscular activity and lumbosacral kinematics. Eighteen participants performed symmetric box lifts of three different mass magnitudes (1.1 kg, 5 kg, 15 kg) under known and unknown mass knowledge conditions. Outcome measures were normalized peak electromyography of four trunk muscles in addition to three dimensional lumbosacral angles and acceleration. The results indicated that three out of four muscles exhibited significantly greater activity when handling unknown masses ($p < .05$). Meanwhile, only sagittal angular acceleration was significantly higher when handling unknown masses ($115.6 \pm 42.7^\circ/s^2$) compared to known masses ($109.3 \pm 31.5^\circ/s^2$). Similarly, the mass magnitude and mass knowledge interaction significantly impacted the same muscles along with the sagittal lumbosacral angle and angular acceleration ($p < .05$) with the greatest difference between knowledge conditions being consistently occurring under the 1.1 kg mass magnitude condition. Thus, under these conditions, it was concluded that mass magnitude has more impact than mass knowledge. However, handling objects of unknown mass magnitude could be hazardous, particularly when lifting light masses, in that they can increase mechanical burden on the lumbosacral spine due to increased muscular exertion and acceleration.

Keywords: Load knowledge; Lifting; Electromyography; Spine Movement.

260. Weight Knowledge and Weight Magnitude: Impact on Lumbosacral Loading

Ahmed T. Farrag, Walaa H. Elsayed, Mohsen M. El-Sayyad and William S. Marras

Ergonomics, 58: 227-234 (2015) IF: 1.556

Several factors can impact lumbosacral loads during lifting, including weight knowledge and weight magnitude. However, interaction between them has never been tested. This study investigated the interaction effect of these variables on lumbosacral forces and moments. Participants performed symmetrical lifts using three different weights. Weight knowledge involved known and unknown weight conditions. A biologically assisted dynamic model was used to calculate spinal loading parameters. Weight impacted all variables, while knowledge impacted only compression, by a moderate amount (5%), and spinal moments. Lifting a lightweight resulted in a difference of 16% and 7.2% between knowledge conditions for compression and anterior-posterior shear forces, respectively,

compared with a negligible difference of $< 1\%$ when lifting a heavy weight. Increased spinal loading with light unknown weight can be attributed to increased muscular co-contraction. Weight knowledge is important to consider at low weight levels as it can increase tissue loading to values equivalent to lifting a heavier weight. Practitioner Summary: Impact of weight knowledge and magnitude on lumbosacral loading was investigated. The results suggest that subjects changed their lifting manner when handling unknown lightweight that increased spine loading to levels equivalent to handling heavier weights. This may be important for high frequency lifting tasks common in modern distribution centres.

Keywords: Knowledge of weight; Magnitude; Low back loads; Manual lifting.

261. The Effects of Continuous Vs Intermittent Exercise on Lipid Profile in Obese Children

Mohamed Serag El-dein Mahgoub and Sobhy Aly

International Journal of Therapy and Rehabilitation, 22: 272-276 (2015)

Aim: To investigate the efficacy of 8 weeks of continuous or intermittent exercise on lipid profile in obese children.

Methods: A randomised pretest-posttest design was implemented to compare the effects of continuous and intermittent exercise, measuring lipid profiles in obese children before and after the intervention. Thirty obese children (11 male and 19 female; age range: 12–15 years; body mass index =25) were randomised into two exercise intervention groups to engage in an 8-week exercise programme consisting of either continuous exercise (Group A) or intermittent exercise (Group B).

Results: Data showed that there was a significant decrease in total cholesterol, triglycerides and low-density lipoprotein (LDL) cholesterol and a significant increase in high-density lipoprotein (HDL) cholesterol in both groups following intervention. There was a significant improvement in the lipid profile results of Group B compared with Group A.

Conclusions: Intermittent exercise programmes are more effective than continuous exercise programmes in improving lipid profiles in children with obesity. Findings from this research could lead to improved health outcomes in obese patients by increasing aerobic capacity, wellness and metabolic fitness.

Keywords: Obesity; Child obesity; Intermittent exercise; Continuous exercise.

Dept. of Physical Therapy for BioMechanics

262. Effect of Backward Walking Training on Postural Balance in Children with Hemiparetic Cerebral Palsy: A Randomized Controlled Study

Heba M. Youssr El-Basatiny and Amr Almaz Abdel-aziem

Clinical Rehabilitation, 29: 457-467 (2015) IF: 2.239

Objective: To study the effect of additional backward walking training on postural control in children with hemiparetic cerebral palsy. Design: Randomized controlled study. Setting: Physical therapy clinics. Subjects: Thirty spastic hemiparetic cerebral

palsied children of both sexes (10-14 years, 14 girls and 16 boys).

Intervention: Children were randomly assigned into two equal groups: experimental and control groups. Both groups received a traditional physical therapy program for 12 weeks. Experimental group additionally received backward walking training which was provided 25 min/day, 3 days/week for 3 successive months.

Outcome measures: Baseline and post-treatment assessment for overall, anteroposterior, and mediolateral stability indices were evaluated by using Biodex balance system.

Results: After treatment; two way ANOVA revealed significant improvement in overall, anteroposterior and mediolateral stability indices of experimental group at the most stable level (level 12) and moderately unstable level (level 7) (1.40 ± 0.44 and 1.73 ± 0.51 ; 1.11 ± 0.34 and 2.13 ± 0.52 ; 1.93 ± 0.51 and 2.68 ± 0.52) respectively, than control group (1.77 ± 0.44 and 2.17 ± 0.56 ; 1.44 ± 0.44 and 2.54 ± 0.49 ; 2.39 ± 0.65 and 3.11 ± 0.49) respectively, ($P < 0.05$). There were significant improvement in all measured variables for both groups at both levels ($P < 0.05$).

Conclusion: Additional backward walking training to traditional physical therapy program yields improvement in postural stability indices in children with spastic hemiparetic cerebral palsy than traditional physical therapy alone.

Keywords: Cerebral palsy; Backward walking; Postural control.

263. Biomechanical Effect of Testing Positions on Hand Grip Strength

Walaa M. El-Sais and Walaa S. Mohammad

Journal of Mechanics in Medicine And Biology, 16: 11-0 (2015)
IF: 0.731

Hand grip strength (HGS) is a useful functional measure of the integrity of the upper extremities, however, many studies have examined it from selected positions (i.e., supine, sitting, standing), with no emphasis on other derived positions that are used in clinical setting. This study's objective was to evaluate HGS in different body positions that are used in clinical setting by using a standard protocol. The study sample was a convenience sample of 40 healthy male participants with no history of psychiatric, neurological, or upper extremity orthopedic dysfunction. Grip strength in the dominant hand was measured with a Jamar Plus++ digital hand dynamometer in five positions: Supine, prone, side-lying, sitting, and standing. The HGS value in prone position was significantly lower than in standing position ($p=0.043$) and sitting position ($p=0.013$). However, no statistically significant difference was found in HGS among the supine, prone, and side-lying positions. Grip strength was moderately correlated with age ($r=0.643$). This study provides useful evaluation for grip strength in different positions. In identical upper extremity positions, grip strength varies between different body positions. Grip strength is equivalent when tested from the supine, side-lying, or prone positions, thus the position can be adjusted according to the patient's condition. Finally, age is an important determinant of hand grip evaluation, particularly when standing position is used?

Keywords: Digital hand dynamometer; Grip strength; Body positions.

264. Backpack Carriage Effect on Head Posture and Ground Reaction Forces in School Children

Dalia Mohammed Mosaad and Amr Almaz Abdel-Aziem

Work, 52: 203-209 (2015) IF: 0.32

Background: Carrying the school bag may lead to forward leaning of the head and trunk which may result in spinal deformities.

Objective: The purpose of this study was to evaluate the effect of carrying a backpack on neck angles and ground reaction forces) GRFs) in children.

Methods: 3-D motion analysis system, with a force plate, was used to examine the effect of carrying backpack on neck angles and GRFs of thirty children with mean age (10.06 ± 1.31 years), mean weight (34.56 ± 6.9 kg), and mean height (138.63 ± 9.82 cm). The unloaded posture was compared with posture when carrying a backpack. The static test was used to assess the three angles of the neck, and the dynamic test was used to assess the GRFs.

Results: There were no significant differences in the craniohorizontal angle and shoulder sagittal posture between carrying backpack and without backpack ($p = 0.153$ and 0.272) respectively. There was a significant decrease in the craniovertebral angle in carrying backpack than without backpack ($p = 0.032$). There was a significant increase in GRFs values in carrying backpack than without backpack ($p < 0.032$).

Conclusion: Carrying backpack with a load 7.5% of the child's body weight alters the head posture and GRFs values.

Keywords: Children; Ground reaction forces; Load carriage; Neck angles.

265. Assessment of Neck Pain and Cervical Mobility Among Female Computer Workers at Hail University

Walaa S. Mohammad, Hayat H. Hamzab and Walaa M. ElSais

International Journal of Occupational Safety and Ergonomics, 21: 105-110 (2015) IF: 0.312

The aims of this study were to investigate the prevalence of neck pain among computer workers at Hail University, Saudi Arabia and to compare the cervical range of motion (ROM) of female computer workers suffering from neck pain to the cervical ROM of healthy female computer workers. One hundred and seventy-six female volunteers between 20 and 46 years of age were investigated. Fifty-six of these volunteers were staff members, 22 were administrators and 98 were students. The Cervical Range of Motion (CROM) instrument was used to measure the ROM of the cervical spine. A questionnaire was used to assess participants for the presence of neck pain. The data were analyzed using the Statistical Package for Social Sciences (SPSS) software, and the level of significant was set at $p < .05$ for all statistical tests. There was a high prevalence of neck pain (75%) among computer workers at Hail University, particularly among students. There were significant differences in cervical lateral flexion, rotation to the right side and protraction range between the pain and pain-free groups. Our results demonstrated that cervical ROM measurements, particularly cervical lateral flexion, rotation and protraction, could be useful for predicting changes in head and neck posture after long-term computer work.

Keywords: Hail university; Neck pain; Computer workers; Females; Crom.

266. Comparative Study of Mechanical and Physiological Gait Efficiency Following Anterior Cruciate Ligament Reconstruction and Rehabilitation

R. E. Sweif and A. A. A. Abdallah

Medicina Dello Sport, 68 (2): 279-289 (2015) IF: 0.235

Aim: Gait efficiency is used to evaluate energy consumption especially in patients with movement disorders. This study compared the physiological and mechanical measures of gait efficiency between patients with ACL reconstruction (ACLR) following rehabilitation and healthy controls and correlated among these measures.

Methods: Seventeen patients with ACLR and sixteen healthy controls participated in the study. A 3D motion analysis system was used for collecting the mechanical measures while the physiological measures were collected after performing the 6-minute walking test.

Results: MANOVA showed that the knee internal rotation, Physiological Cost Index (PCI) and Rate of Perceived Exertion (RPE) increased and the speed of walking decreased significantly in the patients compared with the controls with no significant difference for the Biomechanical Efficiency Quotient (BEQ). There were significant positive correlations between each of the PCI & RPE and each of the BEQ, speed of walking and knee internal rotation in each group.

Conclusion: There are alterations in both mechanical and physiological measures of gait efficiency in patients with ACLR following rehabilitation, clarifying the need for performing additional endurance as well as knee stability training programs. The positive correlations indicate that using either of the mechanical or physiological measures for evaluating gait efficiency is acceptable. language: English, Italian

Keywords: Gait ; Anterior cruciate ligament ; Knee joint.

Dept. of Physical Therapy for Cardio Vascular, Respiratory Disorders and Geriatrics

267. Electromagnetic Field Versus Circuit Weight Training on Bone Mineral Density in Elderly Women

Hany Farid Eid Morsy Elsisi, Gihan Samir Mohamed Mousa and Mohamed Taher Mahmoud ELdesoky

Clinical Interventions in Aging, 3: 539-548 (2015) IF: 2.077

Background and purpose: Osteoporosis is a common skeletal disorder with costly complications and a global health problem and one of the leading causes of morbidity and mortality worldwide. Magnetic field therapy and physical activity have been proven as beneficial interventions for prevention and treatment of osteoporosis. The purpose of this study was to compare the response of bone mineral content and bone mineral density (BMD) in elderly women to either low-frequency low-intensity pulsed magnetic field) LFLIPMF or circuit weight training (CWT) on short-run basis (after 12 weeks).

Patients and Methods: Thirty elderly women, aged 60–70 years, were randomly assigned into two groups (magnetic field

and CWT) (n=15 each group). The session was performed three times per week for magnetic field and CWT groups, for 12 weeks. BMD and bone mineral content of lumbar spine (L2–L4) and femoral neck, trochanter, and Ward's triangle were evaluated before and after 12 weeks of treatment.

Results: Both magnetic field and CWT for 12 weeks in elderly women seem to yield beneficial and statistically significant increasing effect on BMD and bone mineral content ($P < 0.05$). But magnetic field seems to have more beneficially and statistically significant effect than does CWT

Conclusion: It is possible to conclude that LFLIPMF and CWT programs are effective modalities in increasing BMD but LFLIPMF is more effective in elderly women.

Keywords: Magnetic field; Circuit weight training; Bone mineral Density; Elderly women; Bone.

268. Impact of High-intensity Interval Training on HbA1c in Patients with Type 2 Diabetes Mellitus

Hany F Elsisi, Yasser M Aneis and Khaled M Mounir

Bulletin of Faculty of Physical Therapy, 20 (2): 168-175 (2015) IF: 2.00

Background: Exercises are often recommended for patients with type 2 diabetes mellitus (T2DM) to improve physical conditioning and glycemic control.

Objective: The aim of this study was to determine the impact of high-intensity interval training (HIIT) on glycated hemoglobin (HbA1c) in T2DM on a short-term basis (after 12 weeks of training).

Patients and methods: Forty patients women diagnosed with T2DM were selected from the outpatient clinic of Faculty of Physical Therapy, Cairo University; their ages ranged from 55 to 65 years.

Patients were assigned randomly to two equal groups ($n = 20$). Group A, the study group, received HIIT and training by treadmill and group B, the control group, received training by treadmill. Exercise training was performed for 20-38 min for group A and for 20-30 min for group B three times a week for 12 weeks. HbA1c was evaluated before training and after 3 months of training (after training).

Results: There was a statistically significant difference in the two groups in HbA1c, where the mean values for group A before and after treatment were 6.290 ± 0.130 and 5.460 ± 0.092 , respectively, and those for group B before and after treatment were 6.405 ± 0.107 and 6.025 ± 0.156 , respectively. Also, there was a statistically significant difference between the two groups in HbA1c ($P = 0.04$), where group A showed greater improvement in HbA1c than group B on a short-term basis.

Conclusion: Regular participation in HIIT was more effective and an alternative to aerobic training in improving HbA1c in T2DM.

Keywords: HbA1c; High-intensity interval training; Type 2 diabetes mellitus.

269. High-intensity Circuit Weight Training Versus Aerobic Training in Patients with Nonalcoholic Fatty Liver Disease

Hany F Elsisiand and Yasser M Aneis

Bulletin of Faculty of Physical Therapy, 20 (2): 181-192 (2015) IF: 2.00

Background: Nonalcoholic fatty liver disease (NAFLD) has become one of the most common causes of liver disease worldwide and has been recognized as a major health burden. To date, no evidence-based therapy has proven to be effective for NAFLD, except for exercise and dietary interventions. The unsuitability of weight-oriented aerobic training for obese people with NAFLD because of the difficulty in maintaining weight loss necessitates the development of alternative strategies such as resistance training.

Objective: The aim of the study was to evaluate the effect of high-intensity circuit weight training (CWT) compared with aerobic training in NAFLD patients.

Materials and Methods: A randomized controlled trial enrolling 32 NAFLD patients of both sexes (15 men and 17 women) with ages ranging from 30 to 55 years without secondary liver disease (e.g. without hepatitis B virus, hepatitis C virus, or alcohol consumption) was conducted. Patients were randomly allocated either to CWT or to aerobic exercise training, three times weekly, for 3 months. Anthropometrics, lipid profile, liver enzymes, and liver steatosis were assessed. Steatosis was quantified with the hepatorenal-ultrasound index (HRI) representing the ratio between the brightness level of the liver and the right kidney.

Results: All baseline characteristics were similar for the two treatment groups with respect to demographics, anthropometrics, lipid profile, liver enzymes, and liver steatosis on imaging. HRI score was significantly reduced in the CWT group as compared with the aerobic exercise training group (-0.38 ± 0.37 vs. -0.17 ± 0.28 , $P = 0.017$), representing an 18 versus 8.54% relative reduction from baseline in the two groups, respectively. CWT also improved body composition, most importantly waist circumference, which was positively correlated with the change in HRI ($r = 0.645$ and $P = 0.009$).

Conclusion: This randomized controlled trial demonstrated a significant reduction in steatosis, as assessed by HRI, after 3 months of CWT accompanied by favorable anthropometric, lipid profile, and liver enzyme changes. CWT may serve as a complement to the treatment of NAFLD.

Keywords: Aerobic exercise; Circuit weight training; Liver steatosis; Obesity.



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Dept. of Application of Computer in Social Sciences

270. Loss Aversion, Adaptive Beliefs, and Asset Pricing Dynamics

Kamal Samy Selim, Ahmed Okasha and HebaM. Ezzat

Advances in Decision Sciences, 2015: 1-18 (2015)

We study asset pricing dynamics in artificial financial markets model. The financial market is populated with agents following two heterogeneous trading beliefs, the technical and the fundamental prediction rules. Agents switch between trading rules with respect to their past performance. The agents are loss averse over asset price fluctuations. Loss aversion behaviour depends on the past performance of the trading strategies in terms of an evolutionary fitness measure. We propose a novel application of the prospect theory to agent-based modelling, and by simulation, the effect of evolutionary fitness measure on adaptive belief system is investigated. For comparison, we study pricing dynamics of a financial market populated with chartists perceive losses and gains symmetrically. One of our contributions is validating the agent-based models using real financial data of the Egyptian Stock Exchange. We find that our framework can explain important stylized facts in financial time series, such as random walk price behaviour, bubbles and crashes, fat-tailed return distributions, power-law tails in the distribution of returns, excess volatility, volatility clustering, the absence of autocorrelation in raw returns, and the power-law autocorrelations in absolute returns. In addition to this, we find that loss aversion improves market quality and market stability.

Keywords: Stock markets; Bounded rationality; Prospect theory; Simulation analysis; Time series analysis; Agent-based modelling; Long memory; Fractals and Self-similarity; Adaptive belief system; Loss aversion.

Dept. of Economics

271. The Marginal Rate of Return and Supply Functions for Schooling in Egypt: Micro-based Econometric Estimation

Marwa Biltagy

Jokull Journal, 65: 177-189 (2015) IF: 0.765

Education is one of the most important types of investment in human capital that creates benefits eventually. Private returns to education include financial option return, non-financial options and non-market returns. On the other hand, the social returns to education include economic growth and non-market social effects. Education has many development goals i.e. it is considered as a tool of social empowerment and global competitiveness. Moreover, education is the most significant asset that explains income disparities among individuals. Accordingly, equity in education leads to equity in income distribution. The main objective of this paper is to estimate the demand and supply functions for schooling in Egypt using the data of Egypt Labor Market Panel Survey 2012. It is concluded that, the number of years of schooling and the family characteristics are the main variables that affect the demand and supply functions of education in Egypt.

Keywords: Education; Marginal rate of return; Supply functions for schooling; Egypt.

272. Good Governance and Economic Development: an Overview

Marwa Biltagy

International Research Journal of Finance and Economics, 134: 89-103 (2015)

This paper focuses on the issue of good governance because improving the quality of governance is essential for economic development and growth. The issue of good governance has gained a lot of importance, since big organizations, donors, and lenders are basing their aid and loans on the condition of adopting policies that ensure good governance. What is especially significant about this paper is the emphasis on the issue of the impact of good governance on economic development. It is known that, democracy and good governance influence economic development. For example, secure private property rights that give incentives to individuals to be productive, rule of law, political stability and lack of violence and control of corruption are essential in promoting economic development. The main objectives of this paper are to provide decision-makers with tools to understand the importance of good governance in supporting other policy goals and to propose recommendations for governments on how to improve quality of governance.

Keywords: Governance; Good governance; Economic development; Democracy.

Dept. of Statistics

273. Using Meta-Goal Programming for A New Human Development Indicator with Distinguishable Country Ranks

Hussein Sayed, Ramadan Hamed, Mohamed Abdel-Ghani Ramadan and Samaa Hosny

Social Indicators Research, 123(1): 1-27 (2015) IF: 1.395

This paper builds on the extensive literature of the benefit-of-the-doubt (BoD) methodology to set weights for composite indicators (CIs). The proposed methodology, meta-goal programming benefit of the doubt (MGP-BoD), proved to overcome some of the BoD shortcomings and enhance its performance. MGP-BoD belongs to the family of common-weights BoD models. It comprises of two sets of goals and two meta-goals. Among other merits, results prove two additional benefits of the MGP-BoD over older BoD. First, it enhances BoD discriminating power by eliminating all ties in CI values and, hence, country ranks. This high discriminating power is achieved in only one totally endogenous step. Second, MGP-BoD weights add up to one. This makes weights more insightful, interpretable, comparable to weights from other weighting systems, and easier to interpret compared to BoD. These additional merits favor MGP-BoD over previous weighting methods. In the meantime, the proposed method preserves a significantly high correlation with previous methods results as shown a set of Pearson and Spearman correlation tests to compare it to various previous methodologies. To validate the proposed methodology, it has been thoroughly tested using sensitivity and classification analyses. All tests are found highly significant. Nevertheless, the method has its own limitations that suggest future research points. Finally, the paper offers a new human development indicator (HDI) using 2012 data using

MGP-BoD. The proposed HDI offers an alternative to the currently used equal-weights HDI that offers distinguishable country ranks and more policy-guiding weights. The highest weights are assigned to education variables.

Keywords: Meta-Goal Programming (MGP); Common weights; Composite indicators (CIS); Discriminating power; Benefit-of-The-Doubt (BOD); Human development indicator (HDI).

274. Likelihood and Bayesian Estimations for Step-Stress Life Test Model Under Type-I Censoring

Ali A. Ismail

Haceteppe Journal of Mathematics and Statistics, 44: 1235-1245 (2015) IF: 0.413

This paper discusses likelihood and Bayesian estimations for partially accelerated stepstress life test model under TypeI censoring assuming Pareto distribution of the second kind. The posterior means and posterior variances are obtained under the squared error loss function using Lindley's approximation procedure. It has been observed that Lindley's method usually provides posterior variances and mean square errors smaller than those of the maximum likelihood estimators. Furthermore, the highest posterior density credible intervals of the model parameters based on Gibbs sampling technique are computed. For illustration, simulation studies and an illustrative example based on a real data set are provided.

Keywords: Reliability; Partially accelerated step-stress life test; Bayesian estimation; Gibbs sampling.

275. Bayesian Estimation of Pareto Distribution Under Failure-Censored Step-Stress Life Test Model

Ali A. Ismail

Journal of Testing and Evaluation, 43: 888-896 (2015) IF: 0.379

In this paper, both maximum likelihood and Bayesian estimators for a partially accelerated step-stress life test model are considered using type II censored data from Pareto distribution of the second kind. The posterior means and posterior variances are obtained under the squared error (SE) loss function using Lindley's approximation procedure. The maximum likelihood estimators and analogous Bayes estimators are compared in terms of their mean-square errors based on simulated samples from Pareto distribution.

Keywords: Reliability; Partial acceleration; Step-stress Test; Pareto distribution; Maximum likelihood estimation; Bayesian estimation; Lindley's approximation; Non-Informative priors; Posterior mean; Posterior variance; Type li censoring.

276. On Studying Partially Accelerated Life Tests Under Progressive Stress

Ismail Ali A. and Al-Babtain A. A

Journal of Testing and Evaluation, 43: 897-905 (2015) IF: 0.379

For highly reliable products, a progressive stress accelerated life test has been proposed to obtain timely information of the product's lifetime distribution.

This article considers a progressive stress partially accelerated life test model when the lifetime of a product under use condition follows Weibull distribution. It is assumed that the progressive stress is directly proportional to time. The statistical properties of the maximum likelihood (ML) estimators of the model parameters such as existence, uniqueness, and invariance are studied. The biases and mean square errors of the maximum likelihood estimators are computed to assess their performances in the presence of the stress method developed in this article through a Monte Carlo simulation study.

Keywords: Partially accelerated life tests; Progressive stress; Weibull distribution; Exponential distribution; Maximum likelihood estimator; Type-I censoring; Existence; Uniqueness; Invariance.

277. Bayesian Estimation Under Constant Stress Accelerated Life Test for Pareto Distribution with TypeI Censoring

Ali A. Ismail

Strength of Materials, 47: 633-641 (2015) IF: 0.376

This article discusses likelihood and Bayesian estimations under constant stress partially accelerated life test model with typeI censoring assuming Pareto distribution of the second kind. Both maximum likelihood and Bayesian estimators of the model parameters are derived. The posterior means and posterior variances are obtained under the squared error loss function using Lindley's approximation procedure.

The advantages of this approximation are shown. Monte Carlo simulations are made under different samples sizes and different parameter values for evaluating and comparing the proposed methods of estimation.

Keywords: Reliability; Testing; Maximum likelihood Estimation; Bayesian estimation; Squared error loss function.

Faculty of Commerce

Dept. of Accounting

278. A Balanced Scorecard Model for Performance Excellence in Saudi Arabia's Higher Education Sector

Tariq H. Ismail and Mansour Al-Thaoiehie

International Journal of Accounting, Auditing and Performance Evaluation, 11, (3/4) : 255-280 (2015)

This paper's main objective is to introduce a balanced scorecard (BSC) model which fits Saudi Arabia's higher education institutions. We used questionnaires to obtain the opinions of respondents of public and private Saudi universities on the suggested key performance indicators (KPIs) derived from using the dimensions of the BSC of Kaplan and Norton (1992) with adaptations. The frequencies of recommended KPIs provided the basis for discussion. The findings revealed that most KPIs, recommended by respondents, were related to the customer and internal business process perspectives, whilst they did not recommend most indicators related to the learning and growth and financial and economic perspectives. Furthermore, most indicators had significant differences according to the type and age of the universities. This paper extends previous studies on measuring performance excellence in the higher education sector by considering a set of KPIs which fit educational systems in emerging economies. The findings would help the management of Saudi universities as well as policy makers in the Saudi Ministry of Higher Education to: 1) define the possibility of adopting a BSC model to drive performance; 2) identify the need to a benchmarking of KPIs which fit both public and private universities.

Keywords: Balanced scorecard; BSC; Key performance indicators; KPIs; Customer perspective; Internal business Process perspective; Learning and growth perspective; Financial and economic perspective; Higher education sector; Saudi Arabia.

279. Exploring Auditors' Perceptions of the Usage and Importance of Audit Information Technology

Heba Abou-El-Sood, Amr Kotb and Amir Allam

International Journal of Auditing, 19: 252-266 (2015)

This study provides novel evidence on the extent to which auditors perceive the usage and importance of audit technology in an emerging market. It explores the types of audit technology tools used and factors influencing the use of these; it tests the association between the perceived use and importance of the tools and firm-specific/auditor-specific characteristics. Using interviews and questionnaires from auditors at Big 4 and international non-Big 4 audit firms, the findings reflect the highly perceived importance of using audit technology in technical and administrative procedures, specifically to assess risk. We find that the perceived use and importance of audit technology is relatively higher for those in Big 4 firms, with less years of auditor experience and higher auditor technology expertise, and those in management positions. The results provide policy makers with guidance on the opportunities and challenges of using information technology in the audit process.

Keywords: Audit technology; Audit software Packages; Audit Automation; Information technology; Caats.



Cairo University

International Publications Awards Cairo University



(5) Humanity Sciencec Sector

5-1Faculty of Archaeology

Total No. of Publication for Social & Humanity Sciences Sector

Faculty	2006	2007	2008	2009	2010
Arts	7	7	17	15	15
Archaeology	1	2	5	16	19
Educational Studies and Research					2
Dar Al-Oloum	1				
Economics and Political Science	13	14	13	8	10
Commerce	4	2	1	4	6
African Research and Studies Institute		1	2		
Mass Communication			1		3
Kindergarten					
Law					
Total	26	26	39	43	55

Faculty	2011	2012	2013	2014	2015	Total
Arts	22	20	24	23	44	
Archaeology	26	32	26	16	25	
Educational Studies and Research	2	4	0	5	1	
Dar Al-Oloum		1	0	0	0	
Economics and Political Science	6	10	42	29	36	
Commerce	17	24	15	11	17	
African Research and Studies Institute	3	8	11	8	3	
Mass Communication	1		0	0	0	
Kindergarten			1	1	3	
Law	1	1	0	5	1	
Total	78	100	93	98	130	0

Faculty of Archaeology

Dept. of Conservation

280. Ramsey CB, Dee MW, Rowland JM, Higham TFG, Harris SA, Brock F, Et Al. Radiocarbon-Based Chronology for Dynastic Egypt. Science 2010; 328:1554

Mona Z. El-Shaieb, Gomaa Abdel-Maksoud, David A. Lightfoot, and Hany A. El-Shemy

Journal of Advanced Research, 6: 535-537 (2015) IF: 3

We have read with great attention Ramsey et al. article that was published in Science in 2010 regarding the Carbon dating of Dynastic Egypt using short lived plants. As for the astronomical part, the authors mentioned some observations concerning the astronomical observation in the Middle Kingdom and New Kingdom, lunar phenomena (phases) and the star so this. Significantly all of these observations were inaccurate as we discussed in our article. In conclusion the study of Dynastic Egypt using plants needs more explanation with deep scientific evidence for different varieties of plants in order to confirm the slight change of dynastic structure. Further studies should be pursued before changing the history timing for any country. Of note is the change in flowering date of many plants that has occurred in the last century.

Keywords: Dynastic Egypt; Short lived plants; Mummies; Radiocarbon; Dating.

281. Preservation of Archaeological Leather by Reinforcement with Styrene Butadiene Rubber

Rushdya Rabee, Mona F. Ali, Abdel Gawaad Ali Fahmy and Sawzan Fakhry Halim

Advanced Materials Research, 1064 (2015)

Leather has been used in Egypt since 4000 BC. Ancient Egyptians used leather as shrouds, bookbinding and manuscripts. This research aims to find a way to protect archeological leather from damage by environmental factors, without losing their archaeological appearance. Leather samples were subjected to ageing in order to simulate archaeological leather. Styrene butadiene rubber was used to coat the leather samples. Then the leather samples were dipped (immersed) in a bath containing SBR dissolved in toluene with concentrations varies from 1 to 5% by weight. The effect of leather/ SBR reinforcement was evaluated by Fourier Transform Infrared Spectrometry (FTIR) and measuring the mechanical properties (tensile strength and elongation at break (%), color difference(?E) and lightness (L), pH value before and after ageing. In addition, Scanning Electron Microscope(SEM) was used to study the surface morphology of samples. Finally, all samples were subjected to ageing after reinforcement. The results revealed that reinforcement of leather samples by SBR solutions having concentration 3 % gave the best results among other concentrations. The mechanical properties of treated samples were enhanced with reduction in the ?E values. The results also showed that the pH values of the treated samples did not change even after further aging. SEM scans evidenced that SBR filled the leather surface cracks besides the formation of a protective layer on the leather surface.

Keywords: Archaeological leather; Styrene Butadiene rubber; Ageing; Scanning electron microscope; Ph value; Mechanical properties.

Dept. of Egyptian Archaeology

282. Some 18Th Dynasty Hieratic Ostraca from Deir El-Bahri

Khaled Hassan Abd El-Aziz

Bulletin De L'institut Français D'archéologie Orientale Du Caire, 115: 1-48 (2015)

The present paper deals with a group of hieratic ostraca stored in the basement of the Egyptian Museum in Cairo. These ostraca are written in black and red ink. Unfortunately, the available data concerning the exact find spot of these ostraca in the museums' registers are very few. According to a brief note found inside the box, these ostraca were perhaps uncovered during the excavations of the Metropolitan Museum by H. Winlock at Deir el-Bahri between 1911 and 1931, either from the north-east side of the court of the Hatshepsut temple or from one of the Naville dumps. Their topics vary between lists of names, distribution of beer in wSm-vessels, and list of supplies presented by the temple of Tuthmosis II to Hatshepsut temple. In addition to a necropolis journals for workmen. Presumably these workmen were involved in establishing royal buildings in the area of Deir el- Bahri and the Valley of Kings. According to the topics as well as the palaeography of the texts, these ostraca are probably to be dated from the First half of the 18th dynasty.

Keywords: Ostraca; 18Th Dynasty; Deir El-Bahri.

283. Un Cercueil En Bois Provenant De Touna El-Gebel Conserve Au Musee De L'universite Du Carie

Hassan Nasr el-Dine Hassan

Journal of Egyptian Archaeology, 101: 263-280 (2015)

On peut constater 75 années après les célèbres découvertes de S. Gabra dans les galeries souterraines de Touna el-Gebel, au cours des fouilles réalisées dans les années 1931–1952, que ces monuments si importants qui y ont été retrouvés sont loin d'être épuisés.¹ Des dizaines d'objets ont été publiés;² mais sur des milliers d'objets variés, combien sont encore inédites! Parmi des centaines de cercueils en bois consacrés aux ibis momifiés, et découverts dans les galeries souterraines de Touna el-Gebel, la plupart sont restés sur place. Quelques uns sont conservés actuellement au magasin d'el-Aschmounein et au Musée de Mallawi.³ Notre cercueil est un des rares cercueils en bois inscrit en hiéroglyphes. On sait que la plupart de ce genre est inscrit en démotique.⁴ Il est aussi le seul cercueil, contenant un ibis, conservé au Musée de l'Université du Caire. Il porte le no. d'inv. de Gabra 1099 (453) et son numéro au Musée de l'Université du Caire est 1618.

Keywords: Cercueil; Bois; Musée du Caire; Inscriptions; Sarcophage; Mallawi; Thot.

284. New Light on "S3-Rnnwtt, T3wy", 'the Royal Cup Bearer' (UC 69964)

Ahmed M. mekawy Ouda

The Journal of Egyptian Archaeology, 101: 359-365 (2015)

This paper presents the first known publication of a curved mud brick, kept at the Petrie Museum of Egyptian Archaeology (UC69964). The Petrie Museum does not have any documentation for this object in the museum archives. In this paper, I assemble the archaeological context for this brick. My method for re-constructing its tentative context is based on the identification of another brick of SA-Rnnwtt, TAwy of the late Eighteenth Dynasty at the Egyptian Museum Berlin (15704), and some other published objects of his.

Keywords: Royal cup bearer mud brick petrie museum.

CAIRO UNIVERSITY

Publication
in
Book & Chapters

Faculty of Science

Dept. of Botany

285. Biological Activities of Active Ingredients From Green Macroalga Enter

Sanaa Mahmoud Metwaly Shanab

Book Published By Lambert Academic Publishing , (2015)

Algae are very simple chlorophyll-containing thallophytic aquatic plants which lack leaves, stems, roots, vascular systems and sexual organs of higher plants. There are wide range of compounds that are used or could be potentially employed as functional ingredients from green algae *Enteromorpha* sp. The current book focus on the active ingredients structure and biological activities of *Enteromorpha* sp and its mode of action.

Keywords: Algae Are Very Simple Chlorophyll-Containing Thallophytic Aquatic Plants.

286. Management Manual for Unesco Biosphere Reserves in Africa

Wafaa Mahrous Amer

Book Published By Unesco Publications, (2015)

Management Manual for UNESCO Biosphere Reserves in Africa English Abstract: (including: Goals, target group and content of the Manual): 85 biosphere reserves in Africa function as model regions for sustainable use of natural resources, adapted to the local conditions. A particular challenge in many places is to involve stakeholders and the general public into the management in a sensible way. Only a few biosphere reserves, e.g. in Ethiopia and South Africa, have truly participatory structures for planning and management. This is what the Manual comes into play: To improve management effectiveness and participation, the Manual aims at the staff of the administrative bodies of African biosphere reserves, both long-time employees as well as to those who take on a new position. The target group of the Manual also includes local partners, funding agencies and other parties, interested in the work of biosphere reserves. The Manual is available in English and French; through a "Creative Commons license", it can be quite freely translated into other languages and adapted to other contexts. The Manual provides practical information how biosphere reserves can integrate nature conservation with the socio-economic development and poverty reduction. Theoretical information is contextualized with respect to the situation in Africa. Practical aspects are the focus of the Manual, for example, how to resolve conflicts between different stakeholders of a biosphere reserve, or, how the economic returns from a biosphere reserve can be shared with the villagers, or, how to formulate a participatory management plan. The Manual provides several options for possible legal and administrative frameworks of UNESCO biosphere reserves in Africa, and it describes how consultations and hearings can be organized. The publication also provides arguments for potential financial supporters and decision-makers in ministries. The particular practical relevance of the Manual is a result of the contributions of some 110 experts from almost all UNESCO biosphere reserves in Africa. Thus, the Manual for present and future managers of African biosphere reserves has effectively been formulated by themselves, as a critically co-developed

instrument. The Manual will enable them to address existing challenges on site more effectively and participatorily. The Manual has been reviewed very positively in the scientific journal *eco.mont* in late 2015. The project is the result of a request from the AfriMAB Bureau and of suggestions made during a workshop organized jointly by BfN, DUK, UNESCO and the AfriMAB Secretariat in summer 2011 (cp. BfN website).

Keywords: Unesco- Biosphere Reserves- Community Participation- Eco-Tourism- Sustainable Development.

Dept. of Chemistry

287. Utilities of 2-Bromoacetyl Benzimidazole in Heterocyclic Synthesis

Taha M A Eldebss

Lambert Academic Publishing, (2015)

Benzimidazole and its derivatives were synthesized from o-phenylenediamine and different reagents and they exhibited high and wide range of biological activities in medicinal, pharmacological and pharmaceutical chemistry and in corrosion chemistry in addition to industrial chemistry. In addition to, their applications in the textile industry as dyeing agents and pesticide and veterinary medicine.

Keywords: Benzimidazole; O-phenylenediamine; Organic acids; Biological activities; Medicinal; Pharmacological; Pharmaceutical chemistry; Corrosion inhibitors food; Pesticide; Dyeing agents and veterinary.

288. Electrochemical Behavior of Antimony and its Anodic Oxide Films

Awad sadek Mogoda

Book Published By Lap Lambert Academic Publishing , (2015)

Antimony is primarily used in alloys, ceramics, glass, plastics, electrochemical energy conversion, semiconductor devices and flame retardant materials. Also antimony oxides are used as electrocatalysts, in making electric display devices and photoconductors. Therefore, it is important to study the electrochemical behavior of antimony and the stability of its anodic oxide film in aqueous solutions using some electrochemical measurements.

Keywords: Is Primarily Used In Alloys; Ceramics; Glass; Plastics; Electrochemical.

289. Chitosan-Based Edible Films

Maher Zaki Diemetry Elsabee

Polysaccharides Bioactivity and Biotechnology, Springer, (2015)

Chitosan-Based Edible Films Maher Z. Elsabee* Faculty of Science, Department of Chemistry, Cairo University, Cairo, Egypt Abstract What is an edible packaging? An edible film or coating is simply defined as a thin film of edible material formed and sprayed on foods or food components. This package can be eaten as a part of the whole food product; it is also biodegradable, so if dumped it will disintegrate in reasonable short time. Edible films and coatings offer extra advantages such as edibility, biocompatibility, esthetic appearance, barrier to gas

properties, nontoxicity, nonpolluting, and having low cost (No et al. J Food Sci 72(5):87–100, 2007). In addition, biofilms and coatings by themselves are acting as carriers of food additives (i.e., antioxidants, antimicrobials) and have been particularly considered in food preservation due to their ability to extend the shelf life. This chapter will focus mainly on edible films based on chitosan – a wonderful amazing material which is derived from the naturally occurring polymer chitin.

Keywords: Chitosan; Chitosan Blends; Starch; Essential Oils; Antibacterial; Shelf Life.

290. Graphene -A Platform for Sensor and Biosensor Applications

Nada Farouk Ahmed Atta

Biosensors - Micro And Nanoscale Applications, Intech, (2015)

Graphene, mother of all carbon materials, has opened up new era of exploration due to its unique properties. Graphene, one-atom thick, exhibits a unique chemical structure and outstanding electronic, optical, thermal, and mechanical properties that made it compelling for various engineering applications. Graphene and graphene-based materials are promising candidates for fabricating state-of-the-art nano-scale sensors and biosensors. They featured with good conductivity and large specific surface area thereby; graphene-based sensors/biosensors performed well with good accuracy, rapidness, high sensitivity and selectivity, low detection limits, and long-term stability. They are ideally used as gas sensors, electrochemical sensors for heavy metal ions, immunosensors and dihydronicotinamide dinucleotide NADH, DNA, catecholamine neurotransmitters, paracetamol, glucose, H₂O₂, hemoglobin, and myoglobin biosensors. This chapter reviews the applications of graphene in nanotechnology since it came to the field particularly in sensing and biosensing applications. It updates the reader with the scientific progress of the current use of graphene as sensors and biosensors. There is still much room for the scientific research and application development of graphene-based theory, materials, and devices. Despite the vast amount of research already conducted on graphene for various applications, the field is still growing and many questions remain to be answered.

Keywords: Graphene, Graphene-Based Materials, Nano-Composites, Sensors, Biosensors.

291. Self-assembled Monolayers on Nano-structured Composites for Electrochemical Sensing Applications

Nada Farouk Ahmed Atta

Handbook of Nanoelectrochemistry Electrochemical Synthesis Methods, Properties and Characterization Techniques, Springer, (2015)

Self-assembled monolayer (SAM) represents one of the methods to precisely modify surface structures in the nanoscale dimension. It has opened up a new era of exploration and has a profound impact on sensors and biosensors due to its unique properties. Different self-assemblies will be considered in this chapter: SAM of metallic nanoparticles on polymeric film, SAM of surfactant on polymeric film, and SAM of S-containing compounds on nanometallic films. The main goal of this chapter is to present comprehensive collection of the recent

achievements in this area. Several issues will be discussed including the morphology, sensitivity, selectivity, stability, and electrochemical properties of the sensor.

Keywords: Nanostructured Composites Self-Assembled Monolayer Conducting Polymers Metal Nanoparticles Surfactants Sensors.

292. Enzyme Sensors Based on Nanostructured Materials

Nada Farouk Ahmed Atta

Advanced Bioelectronic Materials, Wiley Online Library, (2015)

Carbon nanotubes, magnetic nanoparticles, and quantum dots have many distinct properties that may be exploited to develop next the generation of sensors. They play an important role in the detection of DNA, RNA, proteins, glucose, pesticides, and other small molecules from clinical samples, food industrial samples, as well as environmental monitoring. This chapter is targeting people in engineering fields, who build biosensors/biosystems, and researchers in molecular biology who use these technologies.

Keywords: Carbon Nanotubes, Magnetic Nanoparticles, Quantum Dots, Enzyme Sensors.

Dept. of Entomology

293. Catalogue of the Iranian Microgastrinae (Hymenoptera: Braconidae)

Neveen Samy Gadallah

Book Published By Magnolia Press, (2015)

In the present study, the Iranian Microgastrinae (Hymenoptera: Braconidae) fauna is summarized. It is based on a detailed study of all available published data and new material collected. In total 99 species belonging to 8 genera are from Iran: *Apanteles* F^rster, 1862 (36 species), *Cotesia* Cameron, 1891 (34 species), *Deuterixys* Mason, 1981 (1 species), *Diolcogaster* Ashmead, 1900 (4 species), *Microgaster* Latreille, 1804 (4 species), *Microplitis* F^rster, 1862 (11 species), *Pholesetor* Mason, 1981 (4 species) and *Protapanteles* Ashmead, 1898 (5 species) in 4 tribes (*Apantilini*, *Cotesiini*, *Microgastrini* and *Microplitini*). A faunistic list with distribution data, and host records are given. Four species are new records for the fauna of Iran: *Apanteles brunnistigma* Abdinbekova, 1969, *A. ingenuoides* Papp, 1971, *Microplitis decipiens* Prell, 1925 and *M. marshallii* Kokujev, 1898.

Keywords: Hymenoptera; Braconidae; Microgastrinae; New records; Catalogue; Iran.

294. Ultra Structure and Bioactivity of Ipomoea Carnea Extract

Mamdouh Ibrahim Nassar

Book Published By Lap Lambert Academic Publishing, (2015)

Several pressures have accelerated the search for more environmentally and toxicologically safe and efficacious pesticides. Most commercially successful pesticides have been

discovered by screening compounds synthesized in the laboratory for pesticidal properties. The increasing incidence of pesticide resistance is also fueling the need for new pesticides. Furthermore, most synthetic chemicals pesticides are halogenated hydrocarbons with relatively long environmental half-lives and more suspect toxicological properties than most natural compounds. Thus, natural compounds have increasingly become the focus of those interested in discovery of safety pesticides. Most people believe that natural pesticides are safer and more Eco-friendly than man-made pesticides. Thousands of the plant secondary compounds have been identified as natural pesticides. Natural pesticides will always be around, but people needed to smart up regarding their use and effectiveness. This contributes with a useful background of the exploitation of plant-derived pesticides, highlights possibilities and limitations and gives guidance for future work.

Keywords: Cotton Leafworm, Natural Pesticides, Botanical Extracts, Integrated Pest Management Histological Studies, Bioactivity, Ultrastructure.

Dept. of Physics

295. Study on the Improvement of the Stability of the Laser System used

Hesham Mohamed Mohamed Mansour

Lambert academic publishing, (2015)

As the applications of the ultrashort laser pulses increase, more studies of the energy stability of these pulses are needed. The mode-locked, powerful, ultra short laser pulses are used in many different scientific, medical, technological, and industrial applications. The energy stability of the mode-locked laser pulses depends highly on the Q-switching and mode-locking techniques which are used to provide such ultrashort laser pulses. These techniques are well-known, and are used for Nd: YAG laser systems. One of these mode-locked Nd: YAG laser systems had been constructed for Helwan Satellite Laser Ranging (SLR) station, located in Helwan - Egypt, by a group of scientists and engineers from the department of Physical Electronics, Faculty of Nuclear Sciences and Physical Engineering (FNSPE), Czech Technical University (CTU) in Prague, Czech Republic. The group research and development is directed to the field of laser ranging technology, picosecond timing techniques, and picosecond solid state photon counting. The picosecond timing techniques are developed and applied in laser ranging and detectors diagnostics. Ultrashort pulses are usually generated with passively or actively mode-locked lasers. The passively mode-locked flashlamp pumped Nd: YAG laser oscillator at Helwan SLR station generates ultra short pulses of picoseconds duration. This passive mode-locking of the laser resonant cavity modes using the saturable absorber causes the laser output to be produced as a train of short, picoseconds, powerful pulses with varying amplitudes.

There is a very strong interest to achieve stability from mode-locked laser beam for satellite laser radar station at Helwan by using a more simple, stable, and easier mode-locker. The energy stability of the laser output can improve the accuracy and reliability of the Helwan satellite laser ranging station ranging data remarkably. Normally, the saturable absorber dyes dissolved in dichlorethan has been used for Q-switching and Mode-locking of this system for many years. Decomposition and degradation of this type of mode-locking is a disadvantage

simply because it is not permanent and needs to be mixed and to be renewed, often, every 5-10 working nights). It's also poisonous; and dissolved in a highly flammable solvents, besides the energy stability of the resulting pulses is not high. All of these reasons gave rise to the idea of this work, which is to study the possibility of using other more suitable, safer, and easier-to-install mode-locker which can result in a better output stability of the system.

To do that the whole laser system is firstly explained. Recent mode-locker, the organic dye ML51 solution in dichlorethan, is studied. The optimum mixing speed of the dye solution is measured. The average output laser energy per shot (train of pulses) resulting from it using three different initial transmissions of the dye solution are also investigated. Then the output stability of doubly Q-switched oscillator (simultaneous active and passive) is studied. Finally the MQWs saturable absorber is investigated as an easy, safe, and permanent mode-locker and the results are compared with those from the dye ML51.

It is found that the optimum mixing of the dye solution occurs in the range of 11 to 12 volts applied to the mixing motor. The average output laser energy per train shows a nonlinear behavior with the input flashlamp energy when ML51 dye solution of 25% initial transmission is used. As the dye initial transmission increases (30 % and 40 %), however, the change appears to be more linear and the dye transmissions of 30%, and 40 % show greater average output energy and much better output energy stability than that of 25 %. When double Q-switching (simultaneous active "acousto-optic" and passive "different dye" used, the best pulse energy-stability is obtained from dye solution 3955 in ethylalcohol. And when three samples of semiconductor saturable absorbers (MQWs mode-lockers) are tested individually, it is found that the output peak energies are much less than that obtained from the dye ML51 mode-locker.

It is, therefore, concluded that to enhance the output energy stability, the dye solution 3955 in ethylalcohol can be coupled with acousto-optic modulator to switch the system, and this would give the best output energy stability. On the other hand, concerning the use of the semiconductor saturable absorbers has proved that these MQWs saturable absorbers are not suitable to mode-lock the laser system oscillator in Helwan SLR station instead of the recent dye solution ML51 in dichlorethan because of its lower output energy which is not enough for satellite ranging.

So that in order to obtain a better energy stability of the Helwan SLR laser system, it is recommended to switch the system using one of the three tested dye solutions (dye 3955, ML63, or ML51), preferably the 3955, with acousto-optic modulator simultaneously. And it is not recommended to replace the existing dye with any of the tested samples of the MQWs mode-locker.

Keywords: laser pulses; Q-switching; mode locking; energy stability.

296. Coherent p-Production off Deuteron Near?-Threshold A Theoretical Overview

Hesham Mohamed Mohamed Mansour

Lambert academic publishing, (2015)

Coherent p₀-photoproduction off the deuteron near ?-threshold is investigated within an approach which includes the reaction amplitudes of the impulse approximation, two-step process with

intermediate pN- and π N-rescattering, and the higher order terms in the multiple scattering series for the intermediate π NN interaction. Results for unpolarized and polarized cross sections as well as for all possible polarization observables with polarized photons and/or oriented deuterons are predicted and compared with available data, and differences with other theoretical models are analyzed. The contribution of $d \rightarrow p0d$ to the deuteron spin asymmetry is calculated and its contribution to the Gerasimov-Drell-Hearn (GDH) integral is explicitly evaluated by integration up to a photon lab-energy of 900 MeV. In addition, the helicity E-asymmetry is calculated. This work is motivated by the measurements of the CLAS Collaboration at Jefferson laboratory, where a cusp-like structure in the energy dependence of the differential cross section has been observed at extremely backward pion angles. The effect of intermediate π NN three-body interaction is significant in certain spin asymmetries, specially at extreme backward pion angles. It turns out that the inclusion of a full π NN three-body contribution is quite essential. In addition, the sensitivity of the results to the elementary π N \rightarrow p0N amplitude and the choice of the NN potential model governs the deuteron wave function is also investigated and considerable dependences are obtained. Compared to the experimental data from CLAS Collaboration for differential cross section and from YrPhi Collaboration for the linear photon asymmetry, sizeable discrepancies are found.

Keywords: Cross section; Multiple scattering; Photoproduction; Polarization observables.

297. 2D Versus 3D Treatment Planning Systems for Bladder and Breast Tumor

Hesham Mohamed Mohamed Mansour

Lambert academic publishing, (2015)

The present study illustrates the following:

- (1) An example of a quality assurance procedure of the 3D-planning system in some physical aspects such as block fields, wedged fields, MU calculations and inhomogeneity corrections.
- (2) An example of a quality assurance procedure of the 2D-planning system in some physical aspects such as MU calculations and inhomogeneity corrections.
- (3) A conventional 2D-TP was compared to 3D-TP for 10 patients with breast and bladder cancer. Both types of treatment planning were performed with two tangential fields for patients with breast cancer and 3-fields technique (anterior & 2 lateral) for bladder cancer patients.
- (4) The number of calculation planes sufficient for three dimensional treatment planning for radiation therapy of intact breast.

Verification of the calculated data using treatment planning system software was done by comparison of the experimental dose measurements for blocked and wedged fields using low and high-energy photon beams. Close agreements between the calculated and measured results were obtained for the 3-D treatment planning (Helax-TMS) for blocked field (half block & field aperture). A significant difference between the measured and calculated data ranged between 3 to 7 % when using central block. The present results emphasize the importance of quality assurance of the 2&3D planning system which should be done as a routine procedure.

The present study shows the importance of three-dimensional (3D) treatment planning application in patients with breast and

bladder cancer with its potential therapeutic advantage over the conventional two-dimensional (2D) approach for such cases.

The (3D) treatment planning system used in this work was the Helax-TMS version 5.1B from Helax AB based on a differential pencil beam model. The other (2D) treatment planning system, introduced in this study was the Multidata treatment planning system version 2.35 based on look-up tables algorithm.

Keywords: Breast cancer; Bladder cancer; 2D treatment; 3D treatment; Multidata treatment.

Dept. of Zoology

298. Renoprotective Efficacies of Cicer Arietinum and Coelatura Aegyptiaca

Amany Ahmed Sayed Ali

Book Published By Lambert Academic Publishing, (2015)

Kidneys are dynamic organ and represent the major control system maintaining the body homeostasis. Women and men differ in the pathogenesis, clinical features and prognosis of many diseases. Therefore, kidneys is under the influence of sexual hormones. These facts attracted my attention to study the relation between hormonal mechanisms that involve sex hormones in the pathogenesis of kidney diseases. Thus, the renoprotective effects of phytoestrogen and calcium supplements were evaluated herein

Keywords: Kidney- Cicer Arietinum Extract – Coelatura Aegyptiaca Shell Powder – Kidney-Oxidative Stress.

299. Does Estrogen Deficiency Cause Hepatic Disorders?

Amany Ahmed Sayed Ali

Book Published By Lambert Academic Publishing, (2015)

The loss of ovarian hormone after menopause is linked to many pathophysiological reactions. The question is, does liver affected by estrogen decline. Bilateral ovariectomy in the animal model was used for studying the effects of ovarian hormone deficiency in human menopause. The ovariectomized (OVX) rat model remains the most popular choice as it has been proven to represent some of the most important clinical features of postmenopausal women. Therefore, the present study evaluate the efficacy of Cicer arietinum extract on the hepatic disorders in OVX rat. This work revealed that there is not severe hepatic damage resulted by estrogen depletion at least under the condition of the present study.

Keywords: Estrogen Deficiency-Liver-Cicer Arietinum

300. Practical physiology: Laboratory methods and techniques

Ayman Saber

CreateSpace Independent Publishing Platform, (2015)

At the beginning of research life you need basic information about the work in the laboratory. The book contains the basic methods and techniques needed in physiological laboratory. All methods and techniques explained in details by very simple way.

Keywords: Physiology; Oxidative stress; Hematology.

301. Basics of Urinalysis: Laboratory Methods and Techniques

Ayman Saber

CreateSpace Independent Publishing Platform, (2015)

Analysis of urine can provide important health clues, where urinalysis can be used to detect certain diseases. Urinalysis is an extremely valuable tool for demonstrating pathological conditions in the excretory system and as an index for the general metabolic condition of an individual. The book contains the basic methods and techniques used in urinalysis.

Keywords: Urinalysis; Techniques; Urine.

302. Sea Cucumber (*Holothuria atra*) Extract Against Hepatorenal Toxicity

Ayman Saber

LAP LAMBERT Academic Publishing, (2015)

Marine organisms are a wonderful source of biologically active natural products. Sea cucumbers are among the marine organisms which use as traditional food, especially in Asia. They are cylinder-shaped invertebrates that live in a variety of sea floor habitats from warm tropical waters to cold deep-sea trenches. *Holothuria atra* is the most important and abundant sea cucumber species in the Red Sea on the Saudi Arabia coast. Sea cucumber contains physiologically active phenolic compounds with antioxidant activity, which afforded a potential therapeutic activity against hepatorenal diseases.

Keywords: Sea cucumber; Hepatorenal; *Holothuria*.

303. Praziquantel and Arachidonic Acid Combination-an Innovative Approach to the Treatment of Schistosomiasis

Rashika Ahmed Fathi El Ridi

An Overview of Tropical Diseases, Intech, (2015)

Tropical diseases affect millions of people throughout the world and particularly in the developing countries. The millennium development goals had specifically targeted HIV/AIDS and Malaria for substantial reduction as well as Tuberculosis while many other tropical diseases have been neglected. The new sustainable development goals have not made such distinction and have targeted all diseases for elimination for the improvement of the quality of life of human beings on earth. The present book was developed to provide an update on issues relevant to the treatment of selected tropical diseases such as tuberculosis, malaria, leishmaniasis, schistosomiasis and ectoparasites such as chiggers which are widely distributed throughout the world. The control of these infections has been hampered by the development of drug resistance and the lack of the development of new and more effective drugs. The understanding of the biochemical processes underlying drug activity is therefore essential for the potential elimination of these infections.

Keywords: Praziquantel, Arachidonic Acid, Schistosomiasis, Chemotherapy, Combination Chemotherapy.

304. The Schistosomiasis Vaccine - it is Time to Stand Up

Rashika Ahmed Fathi El Ridi

Frontiers-Switzerland, (2015)

Editorial: The schistosomiasis vaccine- It is time to stand up Rashika El Ridi 1*, Ahmad Othman 2* and Donald P. McManus3* 1 Zoology Department, Faculty of Science, Cairo University, Cairo, Egypt, 2 Medical Parasitology Department, Faculty of Medicine, Tanta University, Tanta, Egypt, 3 QIMR Berghofer Medical Research Institute, Brisbane, Queensland, Australia **Keywords:** *Schistosoma mansoni*, *Schistosoma haematobium*, schistosomiasis vaccine, paramyosin, Sm14, schistosome peptidases, type 1 and type 2 immunity *Correspondence: Rashika El Ridi, rashikaelridi@hotmail.com; Ahmad Othman, ahmed_ali44@hotmail.com; Donald P. McManus, Don.McManus@qimrberghofer.edu.au Schistosomiasis is a severe parasitic disease, endemic in 74 developing countries with up to 600 million people infected and 800 million, mostly children, at risk of contracting the disease following infection predominantly with *Schistosoma mansoni*, *Schistosoma haematobium* or *Schistosoma japonicum*. The disease burden is estimated to exceed 70 million disability-adjusted life-years, and leads to remarkably high YLD (years lived with disability) rates. Even more importantly, people with schistosomiasis are highly susceptible to malaria, tuberculosis and hepatic and acquired immunodeficiency viruses. There is only one drug, praziquantel, currently available for treatment and it has high efficacy, low cost, and limited side effects. However, only 13% of the target population has received the drug, and those treated are at continuous risk of reinfection necessitating repeated drug administration and the emergence of drug resistant parasites is a constant threat (1). Currently there is no vaccine. The a priori requirements for discovery of a vaccine formulation include: identification of protective key immune players in humans; characterization and isolation of target antigens; establishment of efficacy in terms of reduction of parasite burden as well as amelioration of immunopathology; establishment of safety; and finally, provision of considerable funds along with physical infrastructure and qualified personnel to carry out clinical trials. The target of >40% protection has been achieved with some schistosome molecules such as fatty acid binding protein (Sm14), paramyosin, calpain large subunit (Sm80), superoxide dismutase (SOD), glutathione S-transferase (GST), glyceraldehyde 3-phosphate dehydrogenase, and cysteine peptidases (2). Furthermore, Pearson et al. (3) identified the antigens selectively recognized by serum IgG1 and IgE of *S. haematobium* patients who acquired praziquantel-induced resistance (DIR) to the infection, or self-cured macaques following *S. japonicum* infection. The probed antigens were derived from *S. mansoni* and *S. japonicum*, likely because of the documented antigen conservation among the three main clinically important species, and were selected among those known to be secreted or localized to the tegument. The tegument is at the host-parasite interface, but its access by host effector antibodies is entirely prevented in healthy schistosomes, otherwise they would not survive a day, not to mention decades, in the host bloodstream. Anyhow, the study identified once again calpain, SOD, and GST as vaccine candidates together with surface membrane-associated antigens such as tetraspanins and glucose transporters, as well as an array of newly discovered target antigens. A remarkable finding in the study was the implication that type 2- (IgG1 and IgE) and not type1-related

antibodies are critical for human resistance against *S. haematobium* reinfection. Besides the worm tegument, which may not be accessed by host effector antibodies, the digestive tract is the other major interface between host and parasite. Schistosome peptidases responsible for digesting blood-born cells, components, and nutrients may be targeted, and possibly neutralized and blocked, by host antibodies, and thus, represent potential vaccine candidates. The timely study of Figueiredo et al. (4) reviewed what is known about the properties and vaccine potential of proteins secreted by the esophagus, and the lining (gastrodermis) of the blind-ended gut, namely Sm14, Sm10.3, venom allergen-like (VAL) protein, Cu-Zn SOD, cathepsin B, and cathepsin L. It is reassuring we have convened on a handful of promising vaccine candidates and several reviews in this issue illustrate the advances that have been made. Kurtis et al. (5) reviewed the discovery, gene cloning and expression of paramyosin; its localization in muscles, just below the tegument, and in the gut lining of adult worms; its protective potential in rodents against *S. mansoni* (24%–53% protection without adjuvant, associated with induction of interferon-gamma, IFN- γ) and against *S. japonicum* (62%–86% protection without adjuvant); its immunogenicity in humans, whereby *S. japonicum* paramyosin was found to be the target of protective type 2-biased cytokine and antibody responses; and plans to move it toward phase I clinical trials. The history of the discovery, gene cloning and expression trials, vaccine potential, and outcomes of completed phase I clinical trials were reported for the fatty acid binding protein, Sm14, by Tendler et al. (6). Cost-effective, large-scale production of recombinant Sm14 expressed in *Pichia pastoris* is currently in place, and the protein will be formulated with glucopyranosyl lipid adjuvant stable emulsion (GLA-SE) adjuvant. This synthetic adjuvant has been selected as it enhances type 1, namely IFN- γ , responses, identified as the basis of the Sm14-mediated protective immunity in animal models and humans. The protective potential of other prominent vaccine candidates, the antioxidant enzymes Cu-Zn SOD and glutathione S peroxidase formulated as plasmid cDNA and recombinant protein preparations, has been assessed in the Olive Baboon (7). The vaccine formulations were entirely safe and strongly immunogenic but, in accord with a plethora of previous vaccine trials involving type 1 immune response-inducing adjuvants or plasmid cDNA constructs, induced limited and/or variable protection in non-human primates against *S. mansoni* challenge infection. Despite the fact that protective immunity to *S. mansoni* and *S. haematobium* infection in humans is documented to be dependent on type 2 immune responses (2, 3, 5 and references therein), formulations of schistosomiasis vaccines destined for use in humans still aim to induce predominant type 1-related cytokines and antibodies, clearly indicating we have not yet reached a consensus regarding the type of immune responses an anti-schistosomiasis vaccine should elicit. The review by Fonseca et al. (8) is, thus, particularly well timed as it seeks to find the optimal immune weapons generating vaccination-mediated resistance against schistosome infection via identifying the immune responses associated with protective immunity elicited by several vaccine candidates namely GST, Sm14, calpain (Sm-80), tetraspanins, and Sm29 in mono- and multivalent formulations. The review emphasized and documented the importance of specific antibodies and strong IFN- γ production in parasite elimination regardless of the vaccine candidate used. Since currently available vaccine candidate formulations mediate type 1-biased protective immunity, which is limited or partial at best, it is important to

revisit the lessons of the radiation-attenuated (RA) cercarial vaccine (9). In this respect, a meta-analysis of the *S. mansoni* RA cercariae vaccine experimental studies in mice (755 observations from a total of 105 articles) was performed by Fukushima et al. (10), who reported that the RA vaccine has the potential to induce protection as high as 78% with a single dose of vaccine. While major predictors of protection were the immunizing cercarial number (antigen dose) and interval between the last vaccination and challenge (duration of immune memory), the study emphasized the importance of host immunization with more than a single schistosome molecule in order to achieve protection. The early pioneers studying schistosome biology helped devise an efficacious schistosomiasis vaccine by demonstrating that the physiological and reproductive status of *S. mansoni* is strongly influenced by the microenvironment of the host and that the lung and liver are the sites of innate and acquired immunity-mediated parasite attrition in permissive (mice, hamsters) and non-permissive (rats) hosts (11). To compile a road map for the successful development of a schistosomiasis vaccine: 1- It appears we have at hand a plethora of well-characterized, ready for use vaccine candidates (2-11). 2- As noted by Fonseca et al. (8), 24 hour and older schistosomula are refractory to killing by antibody-dependent complement-mediated attrition, and this fully applies to antibody-dependent cell-mediated cytotoxicity (ADCC) as well. 3- Specific antibodies may access the worm gut lumen and those that escape immediate digestion might be able to neutralize and interfere with enzymes critical for worm feeding and fecundity, but not survival, as these processes by definition impact on juvenile and adult worms not schistosomula migrating in the lung capillaries and liver sinusoids (4). 4- We are left then with the hunt and chase theory, whereby immune antibodies and cells interact with excreted-secreted parasite products in the vicinity of migrating schistosomula, alarming and activating effector immune cells (2, 9, 12). 5- Eosinophils and basophils would be particularly effective immune cells but need a type 2 immune environment for recruitment and activation (2, 9, 12, 13). 6- Protective immunity against reinfection with *S. mansoni* and *S. haematobium* in humans is documented to be associated with type 2 responses (2, 3, 5, 8). 7- There is considerable evidence demonstrating that immunization of outbred, akin to man, mice with selected vaccine candidates in conjunction with type 2 immune response-inducing cysteine peptidase, papain, or cytokines (namely interleukin-25, interleukin-33, or thymic stromal lymphopoietin) can elicit a reduction in *S. mansoni* worm burdens consistently higher than 50% and reaching the 78% level achieved by vaccination with the RA cercarial vaccine (14). 8- These molecules inducing type 2 immunity were replaced by *S. mansoni* cysteine peptidases, leading to consistent and highly significant ($P < 0.0001$) 50%-83% protection of outbred mice against *S. mansoni* challenge infection (15). 9- It has been demonstrated that this approach, incorporating a cysteine peptidase-based vaccine, is effective in protecting hamsters and mice against *S. haematobium* as well (16). 10- A consensus should be reached without delay in order that independent, collaborative experiments could be devised and undertaken that would result in the development of a near sterilizing protective immunity-inducing schistosomiasis vaccine (2, 9). In conclusion, discovery of a successful vaccine for a host as complex as man against a parasite as complex as *Schistosoma* is a monumental scientific challenge with many factors at play including parasite strain; intensity, duration and frequency of infection; genetic make-up and immunological status of the host;

perinatal sensitization; host nutritional status; and co-infections with other infectious pathogens. Insights of protective immune responses generated by vaccination have been deduced from experiments with rodents or, more importantly, nonhuman primates, but data and experience with humans are still much needed. Important considerations such as vaccine efficacy, safety and cost, all count in the development of a successful human vaccine. It is highly unlikely that the vaccine, when available, would stand alone, but it could be a major element in an integrated control package. A primary goal should be the vaccination of children in endemic regions at an age as early as possible on the path to the elimination of schistosomiasis.

Keywords: Schistosomiasis; Vaccine; Surface membrane antigens; Excretory-secretory products; Type 1 and Type 2 immune responses.

305. Digenetic Trematode Prohemistomum Vivax and its Effect on Human Health

Salwa Abdel Hamid Hamdi Abdel Salam

Book Published By Lambert Academic Publishing, (2015)

The present investigation focuses on the change in some physiological parameters concerning the liver and kidney functions induced after experimental oral infection of the albino mouse, *Mus musculus*, with the metacercariae of prohemistomum vivax. These were obtained from the skeletal muscles of the Nile fishes *Oreochromis niloticus*, *Clarias gariepinus* and *Bagrus bajad*. Also, Native SDS-Proteins lactate dehydrogenase (LDH), Glucose-6-phosphate dehydrogenase (G6PDH), 6-phosphogluconate dehydrogenase (6PGDH), acid phosphatase (ACP) and alkaline phosphatase (ALP) in liver and kidney tissues of mice *Mus musculus* were electrophoretically analyzed before and after 4 weeks post infection with the digenetic trematode *Prohemistomum vivax*. In conclusion, it seems possible to postulate that on the long run, the human being health is correlated with the infection by this parasite, which has expressed many hazards upon the ingestion of larval digenetic stages in the musculature of several fish caught from local water. So it must be eating non-polluted fishes which caught from clean water or farms.

Keywords: 978-3659708749

306. Evaluation of The Nutritive Value of Some Species of Crustacea

Salwa Abdel Hamid Hamdi Abdel Salam

Book Published By Lambert Academic Publishing, (2015)

The edible crustaceans, *Erugosquilla massavensis*, *Penaeus semisulcatus*, *Metapenaeus monoceros* (shrimps) and *Portunus pelagicus* (crab), from different regions are important components of the aquatic fauna. These edible crustaceans can be beneficial as nutraceutical and pharmaceutical components, if we can use in the treatment of some diseases. So, the purpose of the present work was, therefore, to assess the protein, carbohydrates, and lipids, vitamins (B1, B2), minerals (K, Na, Ca, P, S) of these species, which may in the future play an important role in some pharmaceutical industries and may be used as specific health foods (functional supplements). Other species, crawfish *Procambarus clarkii* now represent a problem to the Egyptian fishermen, farmers and for the river Nile

environment. Also, The present work showed that, it could be biologically managed through introducing it as cheap food that can contribute to aquatic animal proteins. Moreover, comparative studies were carried out with two high priced marine shrimps namely: *Penaeus japonicus* and *Penaeus semisulcatus*. The former was obtained from lake Quarun while the latter from the Suez Gulf.

Keywords: Crawfish *Procambarus Clarkii*.

307. Anticholestatic Effect of Holothuria Arenicola Extract in Rats

Sohair Ramadan Fahmy

LAP LAMBERT Academic Publishing, (2015)

Holothuria arenicola is the most important and abundant sea cucumber species in the Mediterranean Sea on the Egyptian coast. The problems associated with antifibrotic drugs are chronic administration, the reduced therapeutic effects and toxicity, so developing antifibrotics from natural products may reduce the risk of toxicity and maintain the therapeutic effectiveness when they used clinically. The therapeutic use of sea cucumbers for healing is established, where they used for joint pain, tendonitis and sprains. The present prospective study correlated the antifibrotic effect of HaE to its direct antioxidant effect that can be related to its contents of phenolic compounds specially chlorogenic acid, pyrogallol, rutin and coumaric acid.

Keywords: *Holothuria arenicola*; antifibrotic drugs; Rats; Oxidative stress.

308. Overview on Some Immune Aspect

Alyaa Ahmed Farid Ahmed El-Said

Book Published by Scholar's Press, (2015)

Immunology is a branch of science that deals with study of immune system (immune organs, cells and molecules) in an organism, its physiological function in states of both health and diseases (hypersensitivities, immune deficiency, transplantation); the physical, chemical and physiological characteristics of the components of the immune system. Immunology has applications in several disciplines of science, and as such is further divided.

Keywords: Immune system; Immune response.

309. Immune System Structure and Function

Alyaa Ahmed Farid Ahmed El-Said

Book Published by Scholar's Press, (2015)

Defense against microbes is mediated by the early reactions of innate immunity and the later responses of adaptive immunity. Innate immunity (also called natural or native immunity) provides the early line of defense against microbes. It consists of cellular and biochemical defense mechanisms that are in place even before infection and are poised to respond rapidly to infections. These mechanisms react only to microbes (and to the products of injured cells), and they respond in essentially the same way to repeated infections. In contrast to innate immunity, there are other immune responses that are stimulated by exposure to infectious agents and increase in magnitude and defensive capabilities with each successive exposure to a

particular microbe. Because this form of immunity develops as a response to infection and adapts to the infection, it is called adaptive immunity.

Keywords: Thymus, Spleen, Lymph Node.

310. Acquired Immune Response

Alyaa Ahmed Farid Ahmed El-Said

Book Published By Scholar's Press, (2015)

Acquired immune response is triggered when a pathogen evades the innate immune system, generates a threshold level of antigen and generates "stranger" or "danger" signals activating dendritic cells. The major functions of the acquired immune system include: Recognition of "non-self" antigens in the presence of "self", during the process of antigen presentation. Generation of responses that are tailored to maximally eliminate specific pathogens or pathogen-infected cells. Development of immunological memory, in which pathogens are "remembered" through memory B cells and memory T cells.

Keywords: T Lymphocytes; B Lymphocytes; Mhc.

311. Health Hazards of Bisphenol A the Effect of Bisphenol A on Vital Organs of Adult Rat

Heba Salah El Din Mohamed About Ezz

Book Published By Lambert Academic Publishing, (2015)

Bisphenol A (BPA) is an endocrine-disrupting chemical that is widely incorporated in the manufacture of polycarbonated plastics and epoxy resins and lines metal food and beverage cans. The extensive use of BPA-containing products leads to a high global population exposure which starts early during the fetal life, postnatal life and extends throughout the life of the individual. High temperature, repeated washing of polycarbonate products and exposure to either acidic or basic conditions accelerate the hydrolysis of BPA-containing polymers leading to an increase in the rate of leaching of BPA. The detection of low levels of BPA in over 90% of human urine samples in the US and other countries raised concerns regarding BPA's potential health effects. Many agencies raised warnings against the excessive use of such substances. Several authorities in Canada, Australia and France banned the use of BPA from baby bottles and food containers for very young children. To toxicologists, this book provides an overview on the health hazards of BPA focusing on the adverse effects of BPA on vital organs of adult rats.

Keywords: Bisphenol A; Heart; Liver; Brain; Kidney; Oxidative Stress; Neurotransmitters; Rat.

Faculty of Agriculture

Dept. of Agricultural Biochemistry Section

312. Plants for the Future

Hany Abdel-Aziz El-Shemy

Intech, (2015)

The world has come to understand only recently the importance of plants in our life. Therefore, we have brought together such book chapters that will help strengthen the scientific background of the readers on plants and deliver the message regarding plants for the future, in food security, health, industry, and other areas. This book will add to the scientific knowledge of the readers on the molecular aspects of plants.

Keywords: Plants For The Future

Dept. of Agricultural Botany

313. Plant–Microbe Interaction And Salt Stress Tolerance In Plants

Neveen Bahaa El-Din Talaat Shawky

Managing Salt Tolerance In Plants: Molecular And Genomic Perspectives, Taylor & Francis, (2015)

Excessive salt accumulation in soils is a major ecological and agronomical problem, in particular in arid and semiarid areas. While important physiological insights about the mechanisms of salt tolerance in plants have been gained, the transfer of such knowledge into crop improvement has been limited. The identification and exploitation of soil microorganisms (especially rhizosphere bacteria and mycorrhizal fungi) that interact with plants by alleviating stress opens new alternatives for a pyramiding strategy against salinity as well as new approaches to discover new mechanisms involved in stress tolerance. Considering the kingdom of fungi, arbuscular mycorrhizal fungi (AMF) stand out as the most significant and widespread group of plant growth–promoting microorganisms. Ectomycorrhizal fungi (EMF) are also important symbionts of particular relevance for many woody plants. Considering the kingdom of bacteria, a wide range of microorganisms including different species and strains of *Bacillus*, *Burkholderia*, *Pseudomonas*, and the well-known nitrogen-fixing organisms *Rhizobium*, *Bradyrhizobium*, *Azotobacter*, *Azospirillum*, and *Herbaspirillum* are classically regarded as important plant growth–promoting rhizobacteria (PGPR). Today, it is widely accepted that AMF, EMF, and PGPR promote plant growth and increase tolerance against stress conditions, at least in part, because they facilitate water and nutrient uptake and distribution as well as alter plant hormonal status, and this ability has been attributed to various mechanisms. This chapter addresses the significance of soil biota in alleviation of salinity stress and their beneficial effects on plant growth and productivity. Moreover, it emphasizes new perspectives and challenges in physiological and molecular studies on salt stress alleviation by soil biota.

Keywords: Plant–Microbe Interaction, Salt Stress Tolerance, Plants.

Dept. of Agronomy**314. Wastewater Treatment Engineering**

Mohamed Samer

Intech Europe, (2015)

This book provides useful information about bioremediation, phytoremediation, and mycoremediation of wastewater and some aspects of the chemical wastewater treatment processes, including ion exchange, neutralization, adsorption, and disinfection. Additionally, this book elucidates and illustrates the wastewater treatment plants in terms of plant sizing, plant layout, plant design, and plant location. Cutting-edge topics include wet air oxidation of aqueous wastes, biodegradation of nitroaromatic compounds, biological treatment of sanitary landfill leachate, bacterial strains for the bioremediation of olive mill wastewater, gelation of arabinoxylans from maize wastewater, and modeling wastewater evolution.

Keywords: Wastewater Treatment, Biological Treatment, Chemical Treatment, Bioremediation, Phytoremediation, Mycoremediation, Vermifiltration, Treatment Plant.

315. Ghg Emission From Livestock Manure And Its Mitigation Strategies

Mohamed Samer

Climate Change Impact On Livestock: Adaptation And Mitigation, Springer, (2015)

This study focuses on greenhouse gas (GHG) emission from livestock manure. In addition to the global warming potential of the GHGs (e.g., CH₄, N₂O, NO, CO₂), ammonia (NH₃) emissions contribute to global warming when NH₃ is converted to nitrous oxide (N₂O). Therefore, this chapter addresses in detail the GHG and NH₃ emissions from livestock manure and their mitigation strategies. This chapter illustrates several mitigation strategies for reducing emissions from manure management continuum, for example, manure storage abatement techniques, use of additives, manipulation of manure pH, implementation of inhibitors, anaerobic treatment, thermochemical conversion of manure, and implementation mitigation policies (e.g., emission tax, emission cap, livestock extensification). Additionally, several innovative mitigation strategies were discussed, for instance, manure treatment methods to produce value-added products and bioenergy and abate emissions, the biorefinery approach, and life cycle analysis to improve the productivity and use of resources and abate emissions.

Keywords: Mitigation Strategies, Emission Abatement Techniques, Greenhouse Gases, Methane, Nitrous Oxide, Ammonia, Manure Management, Slurry Treatment.

Faculty of Veterinary Medicine**Dept. of Fish Diseases And Management****316. Selected Topics In Viral Diseases Of Fish And Shellfish**

Alaa Eldin Abdel Mouty Mohamed Eissa

Book Published By Lambert Academic Publishing, (2015)

The book is a systematic diagnostic guide of most common viral diseases of fish and shellfish. It is recommended for both undergraduate and graduate students of Aquatic Animal Health, Fish & Shellfish Diseases, Aquatic Animal Virology, Clinical Aquatic Virology and Fish / Shellfish Pathology majors. The book is also very useful for aquatic veterinarians, fish pathologists, fisheries scientists and marine biologists.

Keywords: Viral Diseases; Fish; Shellfish;

Dept. of Pharmacology**317. 1- Basic Overview on Gas Chromatography Injectors; 2- Basic Overview on Gas Chromatography Columns; and 3- Overview of Detectors in Gas Chromatography**

Abd El-Aty Mostafa Abd El-Aty

Analytical Separation Science, Volume 3, Wiley-Vch Verlag Gmbh & Co. Kga, Boschstr, Weinheim, Germany, (2015)

These Book Chapters give Basic overview of Gas Chromatography Injectors; Columns; and Detectors.

Keywords: Injectors; Columns; Detectors.

Dept. of Veterinary Hygeine and Management**318. Principles of Medical Biotechnoloy: Medical and Animal Biotechnology**

Hussein AbdElHay ElSayed Kaoud

Amazon-Create-Space,UK, (2015)

This Edition having the title PRINCIPLES of MEDICAL BIOTECHNOLOGY is a scientific book containing recent advances that are ongoing in certain medical and animal biotechnological applications. Ten chapters related to the newest biotechnological achievements in methods used to manipulate genes, medicine, health care; biopharmaceutical producing and transgenesis are presented in this book.

As well as "Gene therapy and Cancer treatment are included; Gene therapy is a novel therapeutic branch of modern medicine. Its emergence is a direct consequence of the revolution heralded by the introduction of recombinant DNA methodology in the 1970s. Gene therapy is still highly experimental, but has the potential to become an important treatment regimen. In principle, it allows the transfer of genetic information into patient tissues and organs.

Also, the book deals with "Animal biotechnology". Animal biotechnology is a branch of biotechnology in which molecular biology techniques are used to genetically engineer (i.e. modify the genome) of animals in order to improve their suitability for pharmaceutical, agricultural or industrial applications. Animal biotechnology has been used to produce genetically modified

animals that synthesize therapeutic proteins, have improved growth rates or are resistant to disease. So, just like other assisted reproduction techniques such as artificial insemination, embryo transfer and in vitro fertilization, livestock cloning improves animal breeding programs allowing farmers and ranchers to produce healthier offspring, and therefore produce healthier, safer and higher quality foods more consistently

Keywords: manipulate genes, medicine, health care; biopharmaceutical producing and transgenesis.

319. Aquaculture Health and Management for Fresh Water Fish and Crustaceans

Hussein AbdElHay ElSayed Kaoud

Lap Lambert Publishing-Germany, (2015)

Aquaculture is the rearing of aquatic organisms (plants or animals) in fresh, brackish or saltwater under controlled or semi-controlled environment.

Aquaculture may be designed for several purposes: for food production, for ornamental purposes, for recreation (sport fishing), as bait fish, for production of food additives such as seaweed. Aquaculture may be extensive or intensive. Extensive aquaculture: it is the growing of a culture species relying on natural productivity, i.e. no feed is given, only fertilizers are added and fish live on natural organisms produced in water. Intensive aquaculture: it is the growing of maximum quantity in a limited space. In this case the use of formulated feed and mechanical aeration is necessary to obtain higher production.

The aquaculture operation can be classified into complete or incomplete. Complete aquaculture:

involves spawning of brood stock for eggs, production of larvae and fingerlings and production of a food species to market size. Manufacture of feeds, processing and marketing may also be involved in the operation. Incomplete aquaculture: involves only a few of these procedures.

There are other terms to describe aquaculture: marine-culture-fish culture- shellfish culture-freshwater culture- warm water culture- coldwater culture. The farming of fish is the most common form of aquaculture. It involves raising fish commercially in tanks, ponds, or ocean enclosures, usually for food. A facility that releases juvenile fish into the wild for recreational fishing or to supplement a species' natural numbers is generally referred to as a fish hatchery.

Good hygiene is essential for hatchery raising success. Ideally, you should not use the same

equipment for more than one tank. Thus each tank would have its own dedicated nets, siphon tubes, spare filters, etc. This is time and money consuming and rarely practiced. However, some much more important guidelines must be followed.

Keywords: Aquaculture; Management; Processing; Hygiene and Sanitation.

320. Diseases of Fish

Hussein AbdElHay ElSayed Kaoud

Lap Lambert Publishing-Germany, (2015)

All forms of aquaculture are susceptible to outbreaks of disease, as many pathogenic bacteria are normal inhabitants of the aquatic environment. Both in aquaculture facilities and in external aquatic environments, the occurrence of disease is a

complex interaction between the host species, disease agents and the environment. In farm environments, outbreaks of disease are greatly influenced by the susceptibility of the hosts, the virulence of the pathogens and adverse environmental conditions. Farming practices may favor disease occurrence, as in the case of intensive and semi-intensive systems of production

Keywords: Forms of Aquaculture; Outbreaks of Diseases; Diagnosis and Therapy.

National Institute of Laser Enhanced Sciences

Dept. of Laser Applications in Metrology, Photochemistry and Agriculture (LAMPA)

321. Photothermal Stability and Hot Carrier Dynamics Of Gold Nanostructures

Yasser Attia Attia Awad Khalifa

Book Published By Lampert, (2015)

Anisotropic shapes of gold nanoparticles are prepared using a modified seed method in the presence of silver ions or clusters in order to study the photo-thermal stabilities and the dynamics of the hot carriers induced by femtosecond laser pulses. It has been observed from studying their photostability to low-power UV irradiation (254 nm) at room temperature that, whereas spheres are very stable to photoirradiation, rods and prisms suffer from photocorrosion and finally dissolve completely with the production of Au(III) ions. Although gold nanospheres are also stable towards thermal treatment, the decomposition of the gold nanorods into spherical nanoparticle aggregates is mechanistically different from the case of nanoprisms. In regards to the hot carrier dynamics, it is found that the phonon-phonon (ph-ph) coupling is much slower in dots than in rods and prisms while electron-phonon (e-ph) coupling is almost the same in these particles.

Keywords: Gold Nanoparticles, Photostability, Thermal Stability, Hot Carrier Dynamics.

322. Ag and Co/Ag Nanoparticles Cytotoxicity and Genotoxicity Study on Hep-2 and Blood Lymphocytes Cells

Tarek Abd Allah El-Tayeb

Chemical Technology Key Developments In Applied Chemistry, Biochemistry And Materials Science, Taylor & Francis, (2015)

Hyperthermia is a state where cells absorb more heat than they can dissipate, which can be lethal to the cells. Such phenomenon has been found as a promising approach for cancer therapy, because it directly kills cancer cells and indirectly activates anticancer immunity [1]. Because focusing the heat on an intended region without damaging the healthy tissue was an important problem that arose by the treatment with hyperthermia, targeting of a specific region was important. If nanoparticles can target a specific malignant tissue, hyperthermia can be directed to this specific tissue. Unlike the conventional hyperthermic techniques, some studies showed that using nanoparticles for hyperthermia helped cancer cells to

reach the lethal temperature without damaging the surrounding tissue [2]. The choice of a specific light delivery mode in clinical settings is usually based on the nature and location of the disease. The optimal light dose can be obtained by adjusting the fluency rate and fluency element. The characterization of light penetration and distribution in solid tumors is important, because it will influence choosing a light source with an appropriate wavelength. From the light sources used in photo thermal therapy, the light emitting diode (LED) generating a desired high energy of specific wavelengths and can be assembled in a range of geometries and sizes [3]. Metal nanoparticles with their wide range of applications, such as catalytic systems with optimized selectivity and efficiency, optical components, targeted thermal agents for exploitation in drug delivery, and medical therapies, as well as surface-enhanced Raman spectral probing, have attracted research attention during the last decade. The size-dependent and shape-dependent properties of nanoparticles render them different from their corresponding bulk materials with macroscopic dimensions [4]. Because of their special physicochemical properties, metal nanoparticles showed a great progress in the bioanalytical and medical applications, such as multiplexed bioassays, biomedicine, ultrasensitive biodetection, [5] and bioimaging [6]. They have several biological applications in drug delivery, magnetic resonance imaging (MRI) enhancement, [6] and in cancer treatment [7]. Silver nanoparticles are among the noble metallic nanomaterials that have received considerable attention due to their attractive physicochemical properties. The surface plasmon resonance and the large effective scattering cross section of individual nanoparticles make them ideal candidates for biomedical applications [8]. On the other hand, other studies were directed toward synthesizing silver nanoshells of 40–50 nm outer surface diameter and 20–30 nm inner diameter using cobalt (Co) nanoparticles as sacrificial templates. In this case, the thermal reaction deriving force comes from the large reduction potential gap between the Ag^+/Ag and the Co^{+2}/Co redox couples which results in the consumption of Co cores and the formation of a hollow cavity of Ag nanoshells. The UV spectrum of this nanostructure exhibits a distinct difference from that of solid nanoparticles, which makes it a good candidate for application in photothermal materials [9]. As little is known about their biological applications in cancer treatment, and relying on the fact of being novel candidates providing high thermal effect, this study was directed toward investigation of the photothermal cancer therapy using silver nanoparticles and cobalt core silver shell nanoparticles in HEP-2 laryngeal cell carcinoma in vitro, as well as the side genetic effects both on DNA and chromosomal levels.

Keywords: Ag And Co/Ag Nanoparticles; Genotoxicity; In Vitro Study; Mutagenicity; Photothermal therapy.

Faculty of Engineering

Dept. of Architectural Engineering

323. Energy Efficiency In The Urban Environment

Hebatallah Esam Aldin Khalil

Book Published by Taylor & Francis, (2015)

Energy crisis, urbanisation and climate change are three global challenges of the twenty-first century. They are closely interrelated either by casual effect (where one causes the other) or by three separate phenomena that have parallel impacts. This book is an attempt to study these challenges worldwide as well as to deal with or combat them in the Middle East – with a special focus on Egypt. In this quest, the authors address these issues from multiple perspectives, disciplines and scales. The first four chapters of this book address the macroscale of urbanism. First, the macroscale of cities is studied from the perspective of city dwellers' quality of life. Second, achieving energy efficiency through urban planning is investigated as a tool for improving city energy performance. Third, the energy efficiency performance of cities is studied by measuring various related indices and their indicators; this is tied to which sustainable urbanism principles these cities follow. Fourth, the author analyses how informal areas – as the most predominant feature of urbanisation in developing countries – achieve sustainable development as a different approach to sustainable urbanism. Case studies are presented and analysed in each chapter; these studies mainly use Egypt as an example for arid zones, developing countries and high rates of urbanisation and include Africa's biggest mega city: Cairo. With its location and urban characteristics, Egypt represents a true model of the three challenges that the book addresses. It is continuously urbanising with its rural settlements expanding to become cities and its cities growing and encroaching on surrounding agricultural land. Egypt has scarce water resources because it is 95% arid. It is also highly susceptible to climate change, which has been clearly monitored in the past decade. Egypt's Nile Delta and north coast are among the most vulnerable risk zones worldwide. Finally, Egypt is witnessing a daily growing energy crisis with high consumption rates, no energy efficiency measures and continuously diminishing potential oil reserves. These factors make it crucial for Egypt to address these issues and to formulate and implement an energy efficiency policy to help mitigate the effects of urbanisation and climate change and to improve quality of life through energy-efficient urbanism. The second part of the book addresses the challenges through the microscale of buildings and the perspective of ensuring indoor air quality within the boundaries of energy efficiency. Energy performance of buildings should include a general framework for the calculation of energy performance and building categories together with thermal characteristics of building, air-conditioning, ventilation, lighting and appliances aspects. These include the contribution of active solar systems to domestic water heating based on renewable energy sources, Combined Power and Heat (CPH) production and district cooling systems. The book demonstrates the importance of incorporating an energy performance directive as a standard in our region; such a goal will aid energy savings in large buildings and set regulations for energy-efficient designs that are based on standard calculation methods. Energy standards would be largely based on international standards and appropriately modified to suit local practices. The target is to develop standardised tools

for the calculation of the energy performance of buildings, with defined system boundaries for the different building categories and for different cooling/heating systems, and to develop a common procedure for obtaining an 'energy performance certificate'. This book attempts to provide transparent information regarding output data (reference values, benchmarks, etc.) and to define comparable energy-related key values (kWh/m², kWh per person, kWh per apartment, kWh per produced unit etc.). Proposals to develop a common procedure for an energy performance certificate and CO₂ emissions are also given.

Keywords: Energy Efficiency, Sustainable Urbanism, Quality Of Life, Energy Efficient Infomralization, Energy Performance, Low Carbon Buildings, Green Buildings, Egypt.

Dept. of Electric Power and Machines

324. Application of Some Modern Techniques in Load Frequency Control in Power System

Mohamed Ahmed Moustafa Hassan

Chaos Modeling And Control Systems Design, Springer, (2015)

The main objective of Load Frequency Control (LFC) is to regulate the power output of the electric generator within an area in response to changes in system frequency and tie-line loading. Thus the LFC helps in maintaining the scheduled system frequency and tie-line power interchange with the other areas within the prescribed limits. Most LFCs are primarily composed of an integral controller. The integrator gain is set to a level that compromises between fast transient recovery and low overshoot in the dynamic response of the overall system. This type of controller is slow and does not allow the controller designer to take into account possible changes in operating conditions and non-linearities in the generator unit. Moreover, it lacks robustness. This chapter studies LFC in two areas power system using PID controller. In this chapter, PID parameters are tuned using different tuning techniques. The overshoots and settling times with the proposed controllers are better than the outputs of the conventional PID controllers. This chapter uses MATLAB/SIMULINK software. Simulations are done by using the same PID parameters for the two different areas because it gives a better performance for the system frequency response than the case of using two different sets of PID parameters for the two areas. The used methods in this chapter are: (a) Particle Swarm Optimization, (b) Adaptive Weight Particle Swarm Optimization, (c) Adaptive Acceleration Coefficients based PSO (AACPSO) and (d) Adaptive Neuro Fuzzy Inference System (ANFIS). The comparison has been carried out for these different controllers for two areas power system, the study presents advanced techniques for Load Frequency Control. These proposed techniques are based on Artificial Intelligence. It gives promising results.

Keywords: Adaptive Acceleration Coef?Cients Based Particle Swarm Optimization Adaptive Fuzzy Adaptive Weight Particle Swarm Optimization Anfis Load Frequency ControlParticle Swarm Optimization Technique.

Dept. of Engineering Mathematics and Physics

325. On the Mathematical Modeling of Memristor, Memcapacitor, and Meminductor

Ahmed Gomaa Ahmed Radwan

Book Published By Springer, (2015)

Among the numerous books and monographs published so far on the memristor, memcapacitor, and meminductor, the Radwan-Fouda book stands out as the most comprehensive, scholarly, and timely. The book has both depth and breadth—it covers practically all aspects of memory circuit elements that have been published in the literature, including important contributions from the authors themselves. Each chapter is carefully organized, well-illustrated, and written pedagogically so even the uninitiated will find it to be eminently readable. The references are comprehensive and surprisingly up-to-date, including some obscure papers, and several future papers that have not yet seen the light of day. Every serious researcher on memristors, memcapacitor, and meminductors will find this book indispensable.

Keywords: Memristor; Meminductor; Memcapacitor; Modeling; Design; Oscillators.

326. Clustering-Based Topic Identification of Transcribed Arabic Broadcast News

Mohamed Hesham Farouk El-Sayed

New Trends In Networking, Computing, E-Learning, Systems Sciences, And Engineering, , Springer, (2015)

In this research different clustering techniques are applied for grouping transcribed textual documents obtained out of audio streams. Since audio transcripts are normally highly erroneous, it is essential to reduce the negative impact of errors gained at the speech recognition stage. In attempt to overcome some of these errors, different stemming techniques are applied on the transcribed text. The goal of this research is to achieve automatic topic clustering of transcribed speech documents, and investigate the impact of applying stemming techniques in combination with a Chi-square similarity measure on the accuracy of the selected clustering algorithms. The evaluation—using F-Measure—showed that using root-based stemming in combination of spectral clustering technique achieved the highest accuracy.

Keywords: Asr Speech; Transcripts Speech; Transcription Errors; Topic Clustering; Topic Identification

327. Application of Genetic Algorithms for the Estimation of Ultrasonic Parameters

Mohamed Hesham Farouk El-Sayed

Computational Intelligence Applications In Modeling And Control, Springer, (2015)

In this chapter, the use of genetic algorithm (GA) is investigated in the field of estimating ultrasonic (US) propagation parameters. Recent works are, then, surveyed showing an ever-spread of employing GA in different applications of US. A GA is, specifically, used to estimate the propagation parameters of US waves in polycrystalline and composite materials for different applications. The objective function of the estimation is

the minimization of a rational difference error between the estimated and measured transfer functions of US-wave propagation. The US propagation parameters may be the phase velocity and attenuation. Based on tentative experiments, we will demonstrate how the evolution operators and parameters of GA can be chosen for modeling of US propagation. The GA-based estimation is applied, in a test experiment, on steel alloy and Aluminum specimens with different grain sizes. Comparative results of that experiment are presented on different evolution operators for less estimation errors and complexity. The results prove the effectiveness of GA in estimating parameters for US propagation.

Keywords: Genetic Algorithm (Ga) Inverse Problem Characterization Ultrasonic (Us) Non-Destructive Testing (Ndt) Transfer Function (Tf) Parameter Estimation Materials Characterization.

328. Resonant Cavity Enhanced Photodetectors: Theory, Design And Modeling

Yasser Mohamed Awaad El-Batawy

Photodetectors: Materials, Devices And Applications, Woodhead Publishing Limited, (2015)

Photodetector is one of key component in optoelectronic integrated circuits (OEICs). Photodetectors are extensively used in optical communication systems, optical interconnections, and biomedical imaging, and they typically operate from visible to near-infrared wavelength. For most applications, one or more of the following performance characteristics including high-sensitivity or quantum efficiency, high-speed, low noise, high dynamic range may be required. However, in optimizing the design of photodetectors, there is a key performance trade-off between quantum efficiency or sensitivity, and speed. To overcome this tradeoff and simultaneously obtain high speed and high sensitivity, resonant cavity enhanced photodetectors (RCE PDs) are used. Here, we discuss, in detail, various RCE PD structures with an emphasis on theory, design, modeling and performance characteristics. Important research results are summarized and ideas on how to improve the design of RCE PDs are presented. The time and frequency response, important for high-speed or high bit rate applications, are discussed from the perspective of detectors in real applications. For optimized design of OEICs, circuit models are indispensable. Therefore, we discuss circuit models for RCE-PDs, including the effects of parasitic elements on time response characteristics as well as device design optimization. The various materials combinations that have been used for RCE-PDs as well as different types of photodetectors are summarized. Finally, the rapidly emerging, high-performance RCE quantum dot photodetectors for mid-infrared applications is introduced.

Keywords: Photodetectors; Resonant Cavity Enhanced Photodetectors (Rce-Pds); Pin-Pd; Apds (Avalanche Photodiodes); Msm Pds; Schottky-Pds; Qdip (Quantum Dot Infrared Photodetectors); Dbr (Distributed Bragg Reflectors); Circuit Modeling; Parasitics Effects Of Rce-Pds; Materials For Rce Pds; Optimization; Quantum Efficiency.

329. Effect of Alloying Elements on Corrosion, Microstructure and Mechanical Properties for Casted Free-Nickel Duplex Stainless Steels

Ahmed Shash

Springer, (2015)

Free nickel Duplex stainless steels containing two different levels of 6–13 wt% manganese contents have been studied and analysed. The alloys, made up of appropriate mixtures of the alloying elements, Ferro-alloys and Ferro-alloys bearing nitrogen were melted in an induction furnace under nitrogen pressure. Even though the resistance to the pitting attack was controlled and enhanced by the nitrogen addition as well as, chromium, molybdenum contents. Also, the cast experimental alloy that contained high manganese was found to offer some advantages over the 2205-type duplex stainless steel in combination of mechanical properties and corrosion resistance. The microstructure development due to increasing manganese contents from 6 to 13 wt% revealed the decrease of the ferrite volume fraction from 82 to 75 %, respectively. Mechanical testing results showed that the free nickel alloys containing 0.14–0.23 wt% carbon with manganese contents ranging from 6.44 to 13.45 wt% have moderate mechanical properties whereas U.T.S. ranging from (691–815) MPa, Y.S. (585–738) MPa, elongation (19–21 %), and a corrosion rate of 0.044–6.0 mm/year, respectively. Manganese is therefore an effective element of duplex microstructures. As an economical development, it is concluded that manganese is a useful replacement element for nickel in duplex alloys, but further work is required before the present alloys, or variations of them, could be commercially viable.

Keywords: Free-Nickel duplex stainless steels; Corrosion resistance; Pitting attack; Microstructure development.

330. Friction Stir Welding and processing VII

Yasser

The Metals Society, (2015)

In this study, four passes friction stir processing (FSP) were applied on AA7075-0 with and without the incorporation of alumina nano-particles (Al₂O₃) of average size 40nm. FSP parameters were constant at 500rpm and 40mm/min speed with tilt angle of 3°. FSP rotation direction applied on clockwise and then counters clockwise direction every two passes. The friction stir processed (FSPed) materials were section and solution treated at 515°C for 1.5hrs that followed by age hardening at 120°C for 12, 24 and 36hrs. The effect of heat treatment regimes on the microstructure and hardness were examined. The microstructure and hardness after HT were compared with that of as FSPed material in each case. It has been found that in case of as FSPed material without any HT the effect of nano-alumina particles is significant in hardness increase relative to the one without powder. However, applying heat treatment regime has resulted in a slighter difference in the hardness between the two cases with and without nano particles additions.

Keywords: Friction Stir Processing; Nano-alumina; AA7075; Aluminum-nano composites; Heat treatment; Hardness; Microstructure.

Faculty of Computers and Information

Dept. of Information Technology

331. Big Data in Complex Systems Challenges and Opportunities

About Ella Hassanien Aly

Springer international publishing, (2015)

This volume provides challenges and Opportunities with updated, in-depth material on the application of Big data to complex systems in order to find solutions for the challenges and problems facing big data sets applications. Much data today is not natively in structured format; for example, tweets and blogs are weakly structured pieces of text, while images and video are structured for storage and display, but not for semantic content and search. Therefore transforming such content into a structured format for later analysis is a major challenge. Data analysis, organization, retrieval, and modeling are other foundational challenges treated in this book. The material of this book will be useful for researchers and practitioners in the field of big data as well as advanced undergraduate and graduate students. Each of the 17 chapters in the book opens with a chapter abstract and key terms list. The chapters are organized along the lines of problem description, related works, and analysis of the results and comparisons are provided whenever feasible.

Keywords: Cloud Computing; Big Data; Stream Clustering Algorithms.

332. Brain-computer Interfaces Current Trends and Applications

About Ella Hassanien Aly

Springer, (2015)

The success of a BCI system depends as much on the system itself as on the user's ability to produce distinctive EEG activity. BCI systems can be divided into two groups according to the placement of the electrodes used to detect and measure neurons firing in the brain. These groups are: invasive systems, electrodes are inserted directly into the cortex are used for single cell or multi unit recording, and electrocorticography (EcoG), electrodes are placed on the surface of the cortex (or dura); noninvasive systems, they are placed on the scalp and use electroencephalography (EEG) or magnetoencephalography (MEG) to detect neuron activity.

The book is basically divided into three parts. The first part of the book covers the basic concepts and overviews of Brain Computer Interface. The second part describes new theoretical developments of BCI systems. The third part covers views on real applications of BCI systems.

Keywords: Brain Computer Interface; Brain Monitoring.

Faculty of Medicine

Dept. of Anesthesiology

333. Anesthetic Considerations for Elderly Eisenmenger Syndrome: Elderly Eisenmenger Syndrome Patient

Hala Mostafa Goma

Book Published By Create Space, (2014)

Only 15–25% of congenital heart disease patients survive into adulthood. Approximately 90% of these children survive to adulthood due to Advances in prenatal diagnosis, interventional cardiology; pediatric cardiac surgery, anesthesia, and critical care have resulted in survival of Eisenmenger syndrome. Eisenmenger syndrome is defined as the process in which a left to right shunt caused by a congenital heart defect in the fetal heart causes increased flow through the pulmonary vasculature, causing pulmonary hypertension, which in turn causes increased pressures in the right side of the heart, and reversal of the shunt into a right..

Keywords: Eisenmenger Syndrome Anesthesia.

334. Anesthesia, and Breast Feeding

Hala Mostafa Goma

Book Published By Creat Space, (2014)

Breast Lactation is a gift for both mother and infant; it is gradual separation after 9 months pregnancy. All international health organizations recommended breast lactation. Breast lactation is completely personal decision. The time spent during lactation allows direct contact between mothers and their infants ,hearing her heart beats as in the uterine life .Mothers may expose for anesthesia during period of lactation ,most of anesthetics and narcotics can affect breast lactation either direct or indirect way. Type of anesthesia during normal labor or cesarean section can affect the initiation of breast feeding...

Keywords: Anesthesia And Breast Feeding

335. Practical Notes for Outpatients (Ambulatory) Knee Arthroscopy Anesthesia

Hala Mostafa Goma

Book Published By Creat Space, (2014)

Outpatient surgery is defined as ambulatory surgery or same-day surgery. Outpatient surgery has developed over the past 3 decades for a number of reasons, due to improved surgical instruments, less invasive surgical techniques and the desire to reduce health care costs. Advantages of outpatient anesthesia over inpatients anesthesia: 1. Outpatient surgery eliminates inpatient hospital admission, 2. reduces the amount of medication prescribed 3. It allows uses a doctor's time more efficiently. Knee arthroscopy for outpatients can safely be performed with general anesthesia, neuraxial anesthesia, or peripheral nerve blocks.

Keywords: Ambulatory Anesthesia.

Dept. of Diagnostic

336. Diagnostic Imaging: Gynecology

Rania Farouk Mahmoud

El Sevier – Amirsys, (2014)

Presented by an international team of experts, the new edition of Diagnostic Imaging: Gynecology features an exhaustive collection of imaging findings in gynecologic diseases. It pairs state-of-the-art images with extensive correlative imaging between ultrasound, sonohysterography, hysterosalpingography, MR, PET/CT, and gross specimens, while a dedicated Techniques section is designed to help optimize imaging protocols and enhance diagnostic specificity.

Keywords: Genital diseases; Female imaging; pelvic floor.

Dept. of Endemic

337. Changing Outcomes with Antiviral or Antifibrotic Therapies

Maissa El Said El Raziky

Cirrhosis: A Practical Guide To Management, John Wiley & Sons, (2014)

When the term cirrhosis was coined two centuries ago by Laennec, it meant – by definition – an end-stage irreversible liver disease. Nowadays this word encompasses a whole range of disorders including some degree of reversibility [1]. The issue of regression or reversal of cirrhosis was first noticed in animal models upon the discontinuation of injurious agents to the liver or initiating treatment with an\$%bro\$c agents [&], but this regression was not fully demonstrated in humans. Evidence of fibrotic and/or cirrhotic regression were reported in chronic viral hepa\$\$s [-5], alcoholic and nonalcoholic steatohepa\$\$s [+,,], and autoimmune hepa\$\$s [-]. However, these studies concluded that, in spite of a variable degree of fibrosis regression there was no complete reversal of cirrhosis [-]. In hepatitis B virus (HBV) related cirrhosis, the use of nucleot(s)ide analogs showed advantages for Child– Turcotte–Pugh (CTP) score improvement and transplantfree survival, and the incidence of hepatocellular carcinoma (HCC) was reduced [9]. Interferon treatment for patients with hepatitis C virus (HCV) related cirrhosis inhibits the development of HCC [10] and improves survival [11]. In situa\$ons where treating the underlying process is not possible, specific antifibrotic therapy is highly recommended [1&]. HBV-Related

Keywords: Antivira Lantifibrotic Therapies Cirrhosis Reversibility.

Dept. of Forensic & Toxicology

338. The Global Practice of Forensic Science

Dina Shokry

The Global Practice of Forensic Science

The origin of forensic science in Egypt can be traced back 6000 years to include the work of Imhotep (BC 2667-2648), physician to Pharaoh Zoser. Currently, the practice of the forensic sciences in Egypt is the responsibility of three governmental bodies: the Egyptian Medicolegal Authority of the Ministry of Justice, the Departments of Forensic Medicine and Toxicology of the

Egyptian universities and Ministry of High Education and the General Administration for Criminal Evidence Investigations of the Ministry of Interior. Information is presented on history, structure, recruitment, training, manpower, responsibilities, workload and funding.

Keywords: Forensic science; Egypt; History; Structure.

Dept. of Internal Medicine

339. Schistosomiasis: the Parasite and the Host

Rashad Sami Barsoum

Oxford Textbook of Clinical Nephrology 4Th Edition, Oxford University Press, (2014)

This chapter describes the basic parasitological and immunopathogenic features of schistosomes, relevant to infection in humans. The host factors which modify the susceptibility and response to infection are discussed. The genetic impact and cytokine profiles at different stages of infection are highlighted, in order to understand the pathogenesis of schistosomiasis, addressed in other chapters of this textbook.

Keywords: Life Cycle, Schistosomal Antigens, Genetics And Schistosomiasis, Immune Response, Parasite Elimination, Concomitant Immunity.

Dept. of NeuroSurgery

340. Microsurgical Decompression with Coflex Interspinous Dynamic Stabilization for Treating Lumbar Degenerative Stenosis

Mohamed M. Mohi Eldin El Basyouni Ahmed

15Th European Congress Of Neurosurgery, Medimond, (2014)

Introduction: Degenerative lumbar canal stenosis is a disease affecting population between 40- 80 years of age and is treated by many surgical modalities. Patients suffering from a single level degenerative lumbar spinal stenosis are included in this prospective cohort study. The purpose of this study is to determine efficacy and safety and to analyze the clinical and radiological results of using Coflex device after microsurgical decompression of a single level degenerative lumbar spinal stenosis.

Patients and Methods: Twelve patients with lumbar spinal stenosis who treated by microsurgical decompression and Coflex stabilization were reported. Coflex stabilization was used after decompression of lumbar canal to treat degenerative segmental stenosis. 10-point Visual Analogue Scale (VAS) was used to evaluate leg pain and back pain post procedure. The neurogenic claudication distance was also calculated. The median follow-up period was 24 months. Radiographic data was collected and implant position and spinal segment motion was evaluated.

Results: Back pain was significantly improved in 83.3% of patients ($P > 0.05$), while radiculopathic pain was significantly improved in 91.6% of patients ($P > 0.05$). Also significant improvement in walking distance is achieved in 91.6% of the patients ($P > 0.05$). No expulsions or implant migration in postoperative follow-up occurred. Radiographic analysis revealed a significant decrease in spinal segment motion postoperatively during follow-up period.

Conclusions: Coflex implantation is safe and effective in treating degenerative lumbar spinal stenosis. It is rapid minimally invasive technique with no reported serious complications. It also, demonstrates excellent results along the whole time of follow-up for improvement of back pain, neurogenic claudication and patient's postoperative satisfaction.

Keywords: Lumbar Spinal Stenosis, Microscopic Lumbar Decompression, Interspinous Devices, Coflex.

Dept. of Obstetrics and Gynecology

341. Normal Labor: Mechanism and Management

Akmal Nabil El-Mazny

Create Space Publishing, (2014)

Labor is the physiological process by which a fetus is expelled from the uterus to the outside world. The World Health Organization (WHO) defines normal birth as: spontaneous in onset, low-risk at the start of labor and remaining so throughout labor and delivery, the infant is born spontaneously in the vertex position between 37 and 42 completed weeks of pregnancy, and after birth, mother and infant are in good condition. The three main factors which affect the mechanics of active labor are the power (uterine contractions or maternal expulsive forces), the passage (pelvis or soft tissues), and the passenger (the fetus). Labor is divided into three main stages that delineate milestones in a continuous process: the first stage (cervical dilation), the second stage (delivery of the fetus), and the third stage (delivery of the placenta). This book provides a comprehensive review of normal labor along with its mechanism and management, which will be of immense value for obstetricians and allied health professionals.

Keywords: Normal labor; Mechanism; Management.

342. Male Infertility: Causes and Management

Akmal Nabil El-Mazny

CreateSpace Publishing, (2014)

Male factors are often the cause of a couple's failure to conceive, therefore, it is important to evaluate and treat the male partner. A male factor may be due to abnormalities of hormonal control, testicular function, or sperm transport or delivery. Evaluation of infertile men is essential to identify both correctable and uncorrectable conditions. A thorough medical and reproductive history and physical examination are integral parts of the workup. The semen analysis provides the basis for identifying the cause of male infertility, as well as planning additional testing and treatment. Treatment options are based on the underlying etiology and range from optimizing semen production and transportation with medical therapy or surgical procedures to complex assisted reproduction techniques. I hope this book will enhance your knowledge of male infertility, and you will be able to apply this information to your practice.

Keywords: Male infertility; Causes; Management.

343. Female Infertility: Causes and Management

Akmal Nabil El-Mazny

CreateSpace Publishing, (2014)

Infertility is defined by the World Health Organization as the absence of conception after at least 12 months of unprotected intercourse. This condition affects approximately 10-15% of reproductive-aged couples. Isolated conditions of the female are responsible for infertility in 35% of cases, isolated conditions of the male in 30%, conditions of both the male and female in 20%, and unexplained causes in 15%. Female factor infertility can be divided into several categories: ovarian, tubal and peritoneal, uterine, cervical and other. A basic evaluation for female infertility includes an assessment for ovulation, tubal patency, and normality of the uterine cavity. Management of female factors affecting fertility may include medical treatment, surgical intervention, or assisted reproductive techniques. I hope this book will enhance your knowledge of female infertility, and you will be able to apply this information to your practice.

Keywords: Female infertility; Causes; Management.

Dept. of Orthopaedic

344. Congenital Clapsed Thumb

Hisham Abdel-Ghani Ragab

Congenital Anomalies of Upper Extremity, Springer, (2014)

Congenital clapsed thumb is a heterogeneous group of disorders characterized by inability to actively extend the metacarpophalangeal joint of the thumb. The thumb is located in flexion adduction position. It may be an isolated deformity, but most common to be a part of generalized disorder, commonly arthrogryposis. It is classified into supple deformity where passive correction of the deformity is possible and complex one where soft tissue contractures prevent passive extension and abduction of the thumb. Early splinting and manipulation is effective methods for treatment of supple deformity. Surgery is required after failure of non operative treatment or in complex deformity. Surgery is tailored according to the present deformity. Surgical treatment is variable combinations of tendon transfer, release of palmar contracture and web release, skin augmentation of web space and palmar skin deficiency, stabilization of metacarpophalangeal joint and flexor pollicis longus lengthening.

Keywords: Congenital Clapsed Thumb, Clapsed Thumb, Thumb In Palm , Thumb Contracture.

Dept. of Pediatrics

345. Major Topics in Type 1 Diabetes

Shereen Abdelghaffar

Intech, (2014)

This chapter focuses on medical nutrition therapy (MNT) in type 1 diabetes mellitus (T1DM), which is vital to achieve metabolic control in patients suffering from this disease. The nutritional goals for people with T1DM are reviewed, which aim at maintaining near-normal blood glucose levels by coordinating insulin therapy, diet, and physical activity patterns. A nutrition prescription is given, and recommendations for appropriate MNT in type 1 diabetes are deduced. Glycemic targets in people with T1DM are highlighted; moreover, the principle of carbohydrate consistency and insulin adjustments with food intake are stressed upon. Meal planning approaches to achieve carbohydrate consistency, including carbohydrate counting, exchange system, and sample meal plans, are explained. Weight management,

energy requirements, macronutrients and micronutrients needs, as well as nutritional management during exercise and supports take special attention in this chapter.

Keywords: Nutritional Management of Type 1 Diabetes.

Dept. of Rheumatology

346. B Lymphocytes in Autoimmune Rheumatic Diseases: Pathogenesis to Treatment

Reem Hamdy Abdellatif Mohammed

Innovative Immunology, Austin Publishing Group, (2014)

toimmune diseases represent a set of disorders of indefinite etiology. In such category of immune disorders, the immune system of a genetically susceptible individual encounters a potentially pathogenic external trigger that initiates the spark for breakdown of tolerance to self antigens provoking a self directed immune attack. The immune-pathogenic constructs in many of the recognized autoimmune diseases appear quite heterogeneous, certain diseases are predominantly B cell driven while others are primarily T cell driven and many undoubtedly represent a combination of both. The knowledge of the exact nature of the initial drive in these diseases is crucial for designing an effective therapeutic strategy. The role of B cells in adaptive immunity encompasses a vast array of immune-stimulatory as well as immune-regulatory responses passing from the secretion of autoantibodies to autoantigen presentation, reciprocal interactions with the T cells, secretion of pro-/anti-inflammatory cytokines and the generation of ectopic germinal centers with chronic inflammation. A hyperactive B cell status with defective regulatory functions can therefore facilitate break down of immune tolerance. A large body of experimental evidence validates the potential effects of B-cell depletion therapies in multiple autoimmune diseases. B cell depletion therapeutic strategy has been successfully employed in a number of autoimmune diseases. Many of these diseases are classified as typically of B-cell in Reem Hamdy A Mohammed Department of Rheumatology and Rehabilitation, Kasr Alainy School of Medicine, Cairo University, Egypt *Corresponding author: Reem Hamdy A Mohammed, Department of Rheumatology and Rehabilitation, Kasr Alainy School of Medicine, Cairo University, Egypt, Email: rmhamdy@yahoo.com Published Date: May 04, 2015

Keywords: Autoimmune Diseases; B Lymphocytes; Immune Tolerance; Antibody Dependent Cell Mediated Cytotoxicity; Antibody Independent Signaling Pathway; Reciprocal T-B Cell Costimulation; B Cell Targets-B Cell Depletion.

Dept. of Surgery

347. Extremity Replantation: A Comprehensive Clinical Guide

Ahmed Medhat Afifi

Springer, (2014)

Extremity Replantation is a comprehensive text covering all aspects of the upper and lower limb, with an emphasis on state-of-the-art techniques in the surgical and medical management of amputation and avulsion injuries as well as the current understanding of the recovery of function following replantation. It is organized following anatomical zones – thumb, digits, wrist,

forearm and elbow; foot, ankle and lower leg – with special chapters dedicated to issues common to all replants, such as complications, medical management, nerve recovery and rehabilitation. Furthermore, the international team of authors demonstrates approaches from the entire spectrum of replantation care specialists, including plastic and reconstructive surgeons, orthopedists, and hand therapists. Generously illustrated with intra-operative photos, this book will serve as a standard reference for orthopedic, reconstructive, plastic, and hand surgeons as well as physicians or ancillary medical staff caring for the replant patient.

Keywords: Extremity eplantation, Plastic Surgery.

Dept. of Urology Dept

348. Pediatric Nursing Psychiatric and Surgical Issues

Hosny Salem

Intech, (2014)

There is no subject that is more controversial in the area of male infertility than varicocele. Varicocele is the most common identifiable cause of male infertility. It can develop during puberty and thus affect the testicular growth and function. The incidence of varicocele in the adolescents is about 15 percent worldwide. Varicocele is associated with a time-dependent growth arrest in adolescents. There is a clear association between varicocele, infertility, and testicular growth arrest. It is also known that varicocelectomy can reverse growth arrest in adolescents. Considerable debate regarding the etiology and effects of adolescence varicoceles has appeared in the literature. This knowledge has raised the question of how best to manage adolescents with varicocele.

Keywords: Pediatric Nursing Psychiatric.

Faculty of Pharmacy

Dept. of Pharmacognosy

349. Simplified Phytotherapy

Omar Mohamed Mohamed Sabry

Book Published by the International Institute for Science, Technology and Education (Iiste), (2014)

It is well known that medicinal plants are the major source of biologically active natural products. The importance of medicinal plants can be realized from their prominence in the market place. WHO publications in the recent years have revealed that more than 25% of all prescriptions issued in Europe, USA and Canada contained an herb. In other countries of the world herbs can be present in 70-90% of the prescriptions. In some industrialized countries the authorization of herbal medicines occurs on the basis of experimental and clinical studies, while in others the traditional use of herbal medicines is also considered as proof for efficacy and safety. This book of phytotherapy is designed to provide phytotherapists with the most commonly herbs used for treatment of different diseases and also with herbal interactions with other herbs, drugs and foods.

Keywords: Phytotherapy, Herbal Medicines, Herbal Interactions

Dept. of Pharmacology and Toxicology

350. Vasculitic Syndromes: Basics And Updates

Sanaa Abdel Baky Kenawy

Book Published By Createspace Independent Publishing, (2014)

What is vasculitis? It is a destructive inflammation of the vessel wall. Damaged vessel wall results in either aneurysm: thin and weak wall (leading to turbulent flow) or stenosis/occlusion: thickened wall (leading to ischemia/infarction). Vasculitis can be isolated in one organ (generally the skin) or systemic (affecting multiple organs). The vasculitic syndromes are defined by the presence of inflammatory leukocytes in vessel walls with reactive damage to mural structures. Loss of vessel integrity may lead to bleeding. The exact mechanisms underlying these disorders are unclear. They result in a broad spectrum of signs and symptoms and their heterogenous nature presents a diagnostic challenge. This book aims to refresh the knowledge on the basics of vasculitic syndromes and throw light on updates. It is designed to provide a useful and informative outline for medical students and professionals and the content is sufficiently comprehensive serving as a reference for clinicians dealing with vasculitis patients.

Keywords: Vasculitic Syndromes; Updates.

The National Cancer Institute

Dept. of Tumor Biology

351. Role Of Surfactants In Regulation Of Cancer

Abeer Mostafa Elsayed Ashmawey

Multi-Targeted Approach To Treatment Of Cancer, Springer, (2014)

Introduction: A brief review is presented in the field of petroleum carcinogenesis. Epidemiological surveys in occupationally exposed populations postulate that long exposure to polycyclic aromatic hydrocarbons (PAHs) is carcinogenic. Several novel surfactants were investigated by Badawi and his collaborators on regulation of cancer growth. Other investigators recorded the role of cationic surfactants and pegylation. **Materials:** Germanium-based surfactants. Tin-based surfactants. Metallosurfactants. Copper- or cobalt-based surfactants. Sulfonamide-based surfactants. Isothiouonium quaternary surfactants. Polymeric surfactants. Benzethonium chloride surfactant. Liposomal doxorubicin. Clinical trials.

Key Findings: Amino acid germinate surfactants provided sufficient immune responses to cancer diseases. Germanium-amino acid surfactant complexes showed antitumor potency related to possible osmotic balance disturbance. Cationic germanium-based surfactants displayed significant cytotoxicity in tumor cells. Cationic tin-based surfactants showed effective antitumor potency possibly due to disturbing the osmotic balance between the tumor cells and the medium. Metallosurfactants like copper cetyltrimethylammonium bromide (Cu-CTAB) surfactant loaded cyclodextrin nano-analogue displayed significant in vitro antitumor activity against human breast cancer cells (MCF-7), cervix cancer cells (Hela), and colon cancer cells (HCT-116) and in vivo effective antitumor activity against Ehrlich ascites carcinoma tumor in mice. Another metal-based surfactant as

cobalt or copper dodecylammonium hydrogen selenite revealed high cytotoxicity against human tumor cell lines, H460 lung carcinoma, breast carcinoma MCF, and colon carcinoma HCT116. Testing novel substituted sulfonamide based-surfactants showed that N-{4 [(laurylamino)sulfonyl] phenyl}acetamide has the best surface activity and exhibited the highest cytotoxicity on liver carcinoma cell line (HEPG2). Another different biphenyl-4,4'-disulfonamide surfactant showed that its copper complex exhibited the highest cytotoxicity on liver carcinoma cell line (HEPG2). Sulfonamide tetrachlorometallate surfactants showed significant in vitro cytotoxic activity against colon HCT human cell line. Screening new isothiuronium and quaternary surfactants reflected promising in vitro antileukemic activity. Surface-active polymeric micelles with covalently entrapped doxorubicin were a system with high promise for the target delivery of cytotoxic agents. Evaluation of benzethonium chloride cationic surfactant revealed broad-range antitumor activity inducing apoptosis and activated caspase. Randomized multicenter phase III trial evaluated the role of maintenance therapy with surface-active regulated liposomal doxorubicin (PLD) after induction of chemotherapy in patients with metastatic breast cancer.

Conclusion: Surfactants play a great role in regulation of cancer growth.

Keywords: Petroleum Carcinogenic; Antitumor Potency; Cationic Germanium.

Faculty of Physical Therapy

Dept. of Physical Therapy for Cardio Vascular, Respiratory Disorders and Geriatrics

352. Chest Physiotherapy

Hady Atef

Book Published By Scholar's Press, (2014)

Chest physical therapy is the term for a group of treatments designed to improve respiratory efficiency, promote expansion of the lungs, strengthen respiratory muscles, and eliminate secretions from the respiratory system. The purpose of chest physical therapy, also called chest physiotherapy, is to help patients breathe more freely and to get more oxygen into the body. Chest physical therapy includes postural drainage, chest percussion, chest vibration, turning, deep breathing exercises, and coughing. It is usually done in conjunction with other treatments to rid the airways of secretions. These other treatments include suctioning, nebulizer treatments, and the administration of expectorant drugs. This book outlined the most recent methods of assessment and treatment of the chest physiotherapy according to latest UK guidelines.

Keywords: Chestm Respiratory therapy:

353. Effect of Laser on Healing of Induced Septal Defects on Rabbits

Hady Atef

Book Published by Scholar's Press, (2014)

congenital ventricular septal defects are among the most frequently reported congenital heart defects. The aim of this study

was to investigate the effect of low level LASER irradiation on induced ventricular septal defects. Twenty male rabbits who underwent induction for ventricular septal defects by cardiac puncture technique with age ranged 6-10 months enrolled in this study for one and half months. They were assigned into two groups: Group (A): The study group consisted of 10 rabbits who received routine animal care associated with LASER irradiation. Group (B): The control group consisted of 10 rabbits who received only routine animal care. Size of the septal defects were measured for both groups at the beginning and after the end of the study. Results: There was significant decrease of size of the diameter of the induced ventricular septal defect with study group (percentage of improvement was 22.17%) when compared with control group. Conclusion: It was concluded that low level LASER therapy can be considered as a promising therapy for congenital heart defects in animals and to be examined on children with similar congenital lesions after then.

Keywords: Laser, Vsd, Rabbits

Faculty of Nursing

Dept. of Community Health Nursing

354. Clinical Teaching in Community- Based Settings: A Practical Guide for Nurse Educators

Ebtesam Moawad Elsayed

Book Published By Create Space Independent Publishing Platform, (2014)

Clinical practice is an essential part of nursing education program. In a complex, rapidly changing, and unpredictable community-based settings such as schools, family and preventive health care centers, geriatric homes, and occupational settings, students demand quality teaching in the clinical area rather than supervision alone. At the same time, research in nursing education over the years has substantiated that clinical teachers must refine their skills and develop their expertise, using self-reflection and feedback from students. While this seems obvious, in some settings, clinical teachers are not prepared for their roles. This guide provides a synthesis of clinical teaching practice standards that are easy to implement and that both nursing students and teacher's value. It is designed to address teaching needs in a facilitative environment with experienced clinical educators. It will assist new clinical educators to develop an understanding of basic clinical teaching/learning principles, evaluation and clinical educator role as they relate to the clinical nursing environment within different community- based setting. Nursing students as well as clinical educators' perspectives are also explored to develop clinical teaching standards.

Keywords: Clinical Teaching, Community- Based Settings, Guide, Nurse Educators

355. Nursing Care of Older Adults: A Practical Guide for Caregivers in Long- Term Care Facilities

Ebtesam Moawad Elsayed

Book Published by Create Space Independent Publishing Platform, (2014)

Older adults are the fastest growing segment of our population and will require nurses and other health professionals that are trained for their special needs. Caring for older adults requires special knowledge, expertise and skills. This text is a practical guide for caregivers in long term care facilities that discusses many physical health problems of older adults and their specific nursing care. The text also provides many clinical nursing procedures for older adults.

Keywords: Nursing Care, Older Adults, Practical Guide, Caregivers, Long- Term Care Facilities

356. Occupational and Environmental Health Nursing in Egypt

ebtesam moawad elsayed

Book Published By Lap Lambert Academic Publishing, Germany, (2014)

Workers involved in various types of industries constitute a considerable portion of the population. Each type of industry involves specific health hazards and risks. The health of workers affects productivity and, consequently, the family and the country. This review emphasizes the role of occupational health nursing. It also focuses on challenges and opportunities of this emerging specialty in Egypt. The workplace is characterized by multidimensional and complex environments that affect worker health and safety. The range of workplace hazards with actual or potential effects on workers' health and safety is as broad and varied as work itself. Healthy workforce is vital for sustainable social and economic development on a global, national, and local level. This book aims to discuss occupational health and safety history country profile in Egypt, identify prevalent occupational health disorders and apply nursing process and public health principles to workers and workplace health issues.

Keywords: Occupational, Environmental, Health, Nursing, Egypt.

Dept. of Maternal and Newborn Health Nursing

357. Early Bleeding During Pregnancy Ectopic Pregnancy And Spontaneous Abortion

Amel Dawod Kamel Gudia

Book Published by Lap Lambert Academic Publishing, (2014)

Bleeding during pregnancy is common, especially during the first trimester, and usually it's no cause for alarm. But because bleeding can sometimes be a sign of something serious, it's important to know the possible causes, and get checked out by your doctor to make sure you and your baby are healthy. Vaginal bleeding occurs in 15% to 25% of early pregnancies. While 50% of women who have vaginal bleeding in the first trimester of pregnancy will continue to have a viable pregnancy, the event creates significant anxiety for the woman and can be managed in a multitude of ways. The 3 main differential diagnoses associated with vaginal bleeding are spontaneous abortion, ectopic pregnancy, and gestational trophoblastic disease. The source is virtually always maternal, rather than fetal. Bleeding may result from disruption of blood vessels in the decidua (ie, pregnancy endometrium) or from discrete cervical or vaginal lesions.

Keywords: Ectopic Pregnancy And Spontaneous Abortion.

358. Management Of Primary Postpartum Hemorrhage

Book Published By Lambert Academic Publishing, (2014)

One of the millennium development goals set by the United Nations is to reduce maternal mortality by three quarters by 2015. The achievement of this goal must focus on understanding the dynamics of the causes of maternal mortality and removing such causes. Postpartum hemorrhage (PPH) is a major cause of perinatal morbidity and mortality worldwide. This paper highlights currently risk factors and preventive measures for managing PPH. View their prevalence of PPH, causes and risk factors, pathophysiology, signs and symptoms, clinical examination, diagnosis, prognosis, complications and adverse outcomes from PPH. Finally, management and prevention measures of PPH.

Keywords: Primary Postpartum Hemorrhage - Risk Factors - Preventive Measures.

Dept. of Medical-Surgical Nursing

359. Clinical pathway For Chronic Renal Failure Patients Undergoing Hemodialysis

Shimaa Raafat Ali Abd-Elhalim

Book Published By Lambert Academic Publishing, (2014)

Chronic renal failure is a progressive, irreversible destruction of the nephrons in both kidneys. In 2014, more than 20 million people have chronic renal failure (CRF) with varying levels of seriousness. Management of patient with chronic renal failure is focused on controlling symptoms, preventing complications and delaying the progression of renal failure; it divided to a) medical management (medications, nutritional and fluid therapy) b) renal replacement therapy (dialysis) c) surgical management (kidney transplantation) Hemodialysis is the most common method used to treat advanced and permanent kidney failure by extracorporeal removing waste products such as creatinine and urea, as well as free water from the blood when the kidneys are in renal failure. Worldwide approximately 18.6 million patients were undergoing hemodialysis (HD) treatment. Although hemodialysis becomes better procedures for most patients, it stills a complicated therapy because it affects physical, psychological and mental health for these patients; they also could be a high risk population susceptible for activity intolerance and acquiring infection. Clinical pathway for the patients with chronic renal failure undergoing hemodialysis is very essential to provide high quality care, decrease potential complication, improve outcome, reduce unnecessary delays in care, decrease cost, decrease morbidity and mortality rate for these patients.

Keywords: Pathway; Hemodialysis.

Dept. of Mental Health Nursing

360. Forensic Mental Health Nursing and Criminal Justice System

Eman Mohamed Ibrahim El-genady

Lab Lambert Academic Publishing, (2014)

Mental health nursing is a recognised specialty of nursing. We have chosen to identify forensic mental health nursing as a subspecialty of mental health nursing rather than a subspecialty of forensic nursing where the focus is more victim oriented. The term 'forensic' (pertaining to the court) provides a link between forensic nursing and forensic mental health nursing but in practice the only common features are the knowledge, skills and attitudes that are common to all nurses.

Keywords: Forensic; Nursing; Criminal Justice.

Dept. of Nursing Critical Care and Emergency

361. Disaster management at Health Care Settings Comprehensive assessment and effective mitigation

Shreen Gaber

LULU. Press, (2014)

In fact a disaster is indiscriminate in whom it affects, the health care centers usually one of the most affected public facilities as a result of dependency of stakeholders (patients) and increasing the flow of health care seekers during the event of disaster. For these reasons and others the health care settings should be establish a highly measures of mitigation and preparedness to meet the different types of disaster effectively as possible. This book aims to draw attention to the different types of disasters; human made and natural or (non preventable), in addition to provide the suggested guidelines, strategies that helps in managing these disasters. the researcher strive to write the book in a comprehensive, concise and feasible sequential steps to be easily understood aspiring at minimize the adverse effect of disaster on health care settings.

Keywords: Mitigation; Disaster; Health care settings; Disaster management; preparedness.

362. Clinical Alarms Hazards and Management at Critical Care Settings

Sameh Elsayed Mohamed Elhabashy

LULU. Press, (2014)

Although Clinical alarm systems at the Critical Care Settings are proposed to alert caregivers of potential patients' problems it produce a noise environment that induce momentous negative alterations in the patients' health and safety especially if ignored or desensitized as a re-sult of overwhelming. This book aims at highlighting the clinical alarms in the Critical Care Settings and associated hazards to the patients and caregivers in addition to suggest clinical solutions and identify advanced systems that may be solving these problems. ECRI Institute scheduled alarm hazards as the number one issue of its annual list of the top 10 health-technology dangers since 2014. In fact almost of alarms in Critical Care Settings considered as a false alarms (has no clinical significant) so the author aiming at finding evidenced based strategies to preventing these false alarms and consequently minimizing the entire alarms in Critical Care Setting and it's hazards.

Keywords: Alarms hazards; Alarms management system; Alarm fatigue; Intensive care unit; False alarm.

363. Cardio-Thoracic Injury, Essentials All Critical Care Nurses Need To Know

Sameh Elsayed Mohamed Elhabashy

MOSBY (Elsevier Health), (2014)

Cardio-Thoracic Injury is one of the leading causes of morbidity, mortality, and Life-threatening complications. It ranks third behind head and extremity trauma in major accidents in developing countries. This book developed to be a much-needed reference for nurses practicing this challenging field. This book is novel in its approach to chest emergency topics, it describes simply the best and most current methods to care for patients with thoracic injury including; theoretical frame, ethical and legal consideration, initial assessment, path-physiology, generation of differential diagnoses, problem solving, general management in addition to management of challenging conditions based on presenting symptoms. Unlike other textbooks, in which the patients' diagnosis is known, this book approaches is providing the initial management of clinical problems without full awareness of the final diagnosis. The book is advised by clinicians, educators, and researchers in the field of emergency nursing after wide search the most updated evidence based practices. Whether you are a beginner or an experienced nurse, this book will be useful because of simple presentation of ideas and supported figures.

Keywords: Hest trauma; Cardio thoracic injury; Nurses, emergency.

364. Acute Respiratory Distress Syndrome (Ards) Developed Clinical Pathway

Maha Salah Ismail

Book Published By Lambert Academic Publishing, (2014)

Acute respiratory distress syndrome (ARDS) represents a complex clinical syndrome and carries a high risk for mortality. The severity of the clinical course, the uncertainty of the outcome, and the reliance on the full spectrum of critical care resources for treatment mean that the entire health care team is challenged. Researchers and clinicians have investigated the nature of the pathological process and explored treatment options with the goal of improving outcome. Through this application of research to practice, we know that some previous strategies have been ineffective, and innovations in mechanical ventilation, sedation, nutrition, and pharmacological intervention remain important research initiatives. Developed Clinical pathway is multidisciplinary plans of best clinical practice for this specified groups of patients that aid in the coordination and delivery of high quality care. They are a documented sequence of clinical interventions that help a patient to move, progressively through a clinical experience to a desired outcome. Although there is a lot of heterogeneity in patients with ARDS, this suggested developed clinical pathway with alternatives was built depended on a lot of researches and evidence based medicine and nursing practices which may be helping these patients to improve outcomes, quality of life and decrease mortality.

Keywords: Clinical Pathway; Acute Respiratory Distress Syndrome (ARDS).

Faculty of Economics and Political Science

Dept. of Economics

365. Where Does the Egyptian Food Subsidy Go

Rasha Ramdan Mohamed

Terre Et Mer: Ressources Vitales Pour La Méditerranée, Bibliothèque De L'Iremmo-L'Harmattan, (2014)

"Bread, freedom, social justice and human dignity", this was the slogan of the 25th of January revolution 2011. The high poverty rate (45% of the population lives below 2 dollar a day) and food security (17% of the Egyptians suffered from food insecurity in 2011) are two major challenges facing the Government of Egypt (GoE) (United Nations Newsletter, 2013 and Ghoneim, 2014). Food Subsidies are one of the most important tools of public policies to reduce poverty, malnutrition and ensure food security by providing basic goods to low-income individuals at prices lower than the market ones. Moreover, it protects the poor from the impact of high food prices during turbulent periods as subsidized food accounts for nearly fifth of poor households' food expenditure (Breisinger et al., 2013). However, the Egyptian food subsidy system suffers from increasing budget that reached 19.2% of the total subsidy budget (including fuel subsidies) that worth 852 02 Million EGP in the FY2013/2014 (CAPMAS, 2014), along with problems of targeting, waste and leakage. Important amount of wheat and subsidized products are lost through the food subsidy system. Such losses increased the government budget, food insecurity in addition to pressure on different scarce natural resources such as water and land (FAO, 2013). Recently, the GoE applies new rules and pricing for both food and fuel subsidies in order to reduce subsidy bill, budget deficit and waste.

Keywords: Food subsidy; Food security; Food wastage; Food leakage.

Dept. of Political Science

366. Empowering Female-owned Smes With Ict in A Group of Select Arab Countries and Brazil

Mona Farid Mohamed Badran

Internet Science, Springer, (2014)

This research paper embarks on a comparative empirical study to investigate the impact that ICT plays on empowering women entrepreneurs in 5 developing/emerging countries, namely Egypt, Jordan, Morocco, Algeria, as a group of Arab countries and Brazil. The World Bank's Investment Climate Assessment Surveys (ICA) is the primary source of data for the four Arab countries and Brazil. The ICA database provides comparable enterprise level data based on similar sampling techniques. The results obtained from the empirical study reveal that in the selected Arab countries, the increase in female owned SMEs is associated with a decrease in the Internal Rate of Return. However, when we control for ICT in terms of ICT index constructed using the Principal Component Analysis technique (PCA), the female owned SMEs becomes statistically insignificant; this is also the case with the ICT index. This implies that IRR is negatively associated with the female owners of the SME, and there is a no association between IRR and the access and use of ICT. In Brazil, however, neither gender nor ICT plays any role in the profitability of SMEs. However, as for the other

measure for economic performance, namely the labor intensity, the findings reveal that in the selected Arab countries, the ICT index has a positive, statically significant, association with labor-intensity, while in Brazil the usage of a Website has a negative, statistically significant, association with the labor-intensity.

Keywords: Smes; Females; Arab countries; Brazil; Ict; Ica survey.

367. The Arab Spring: Why in Some Arab Countries and Not in Others?

Mustapha Kamel A. Al-Sayyid

Routledge Handbook of the Arab Spring. Rethinking Democratization, Routledge, (2014)

Why did Arab Dignity revolts of 2011 break out in some Arab countries and not in others? The chapter takes the reader into four directions likely to provide an explanation, namely the position of the countries where the revolts took place in the division of the Arab world into rich and poor states, the flawed republican type of political system in these countries, the youth bulge accompanied by failure to create decent jobs to young educated people and dislocations provoked by liberal economic measures applied in these countries. It also explains the exceptional situation of Libya who joined this group, despite its oil wealth because of international sanctions provoked by Gaddafi's adventurous foreign policies. It also explains causes of variations among these in terms of the human cost of these revolts

Keywords: Dignity revolts; Legitimacy; Youth bulge; Social media; Human cost.

368. A Resurgence In Arab Regional Institutions? the Cases of the Arab League and the Gulf Cooperation Council Post-2011

Sally Khalifa Isaac

Regional Insecurity After The Arab Uprisings: Narratives Of Security And Threat, Palgrave Macmillan, (2014)

This chapter offers an examination of the role of regional institutions in security processes since 2011, taking into account the League of Arab States and the Gulf Cooperation Council. It argues that both institutions have had important roles in the Arab region post-2011. Despite its poor record in representing collective Arab action, the LAS started to assume a significant regional role, especially in conflict areas. However, serious doubts are raised concerning the League's real prospects as a credible patron for peace and security in the Arab region. The chapter concludes by questioning whether regional institutions have sufficient coordination, influence, competitiveness, and complementarity in their as a security actor in the MENA region and thereby illustrates that the weakness of organization and regional security architecture continues after the Arab uprisings.

Keywords: Regional security; Arab league; Gulf cooperation council.

Faculty of Commerce

Dept. of Accounting

369. Accounting, Regulation, and Governance in Financial Institutions

Heba Salah-El-Din Mohamed Ahmed Abou-El-Sood

Book Published by Lap Lambert Academic Publishing, (2014)

To the extent that financial institutions have a crucial role in the development and stability of the economy, poor performance of banks affects the financial fragility of the whole economy. In turn, accounting and regulatory bodies propose an array of regulations to shape banks' operations and risk. This book investigates financial accounting, regulation and governance issues in banks. It comprises three studies that cover these issues. In the first study, using a sample of U.S. bank holding companies over the financial crisis period 2007-2009, I test and find strong evidence of regulatory capital management and income smoothing behavior using loan loss provisions. Bank holding companies accelerate loan loss provisions to smooth income when banks (1) hit the regulatory minimum target, and (2) are more profitable. In line with the topical debate on the overhaul of accounting standards for loan loss provisioning, I test and find support for the regulators' claim that the current accounting rules reinforce procyclicality in regulatory capital. The procyclicality inherent in loan loss provisions tends to accentuate regulatory capital management during economic downturns. The second study examines whether regulatory capital ratios are significantly associated with bank distress. It investigates whether the association is affected by the bank's proximity to the minimum required capital ratios. The results reveal that the association between the regulatory capital ratio and bank distress becomes significant if the bank holding company has a capital ratio of less than 6 percent, below which U.S. bank regulators do not regard banks as being well capitalized. During the financial crisis period of 2007-2009, I predict and find an insignificant association when the criterion for banks to be classified as well capitalized is set to its current threshold of 6 percent. The significance increases when I set the criterion to the higher levels of 8 percent, 10 percent and 12 percent respectively. Finally, the association is significantly enhanced when simultaneously including regulatory requirements with respect to both the leverage ratio and the tier 1 capital ratio. The third study investigates the influence of ownership structure of U.S. bank holding companies on risk-taking behavior during the period 2002-2009. More specifically, I test and find that concentrated shareholders discourage banks from investing in risky positions with respect to total assets, loans and off-balance-sheet items. Regarding the effect of the regulatory capital adequacy on the association between ownership concentration and bank risk taking, I find that the larger the regulatory capital, the less negative is the association between ownership concentration and risk taking in banks. Additionally, I find that this effect is more pronounced for well-capitalized bank holding companies than for poorly capitalized bank holding companies. Finally, I examine whether this effect differs significantly between the crisis period of 2007-2009 and the pre-crisis boom of 2002-2006. Results show that the effect of regulatory capital adequacy on the association between ownership concentration and risk taking is less pronounced for bank holding companies during a period of financial crisis relative to a pre-crisis boom period.

Keywords: Loan loss provisions; Regulatory capital management; Income smoothing; Procyclicality; Distress; Default probability; Financial crisis; Ownership concentration; Risk taking; Bank holding company.

Dept. of Business Administration

370. Tourism Marketing in Developing Countries

Nermeen Atef Ahmed Hegazi

Emerging Innovative Marketing Strategies In The Tourism Industry, Igi Global, (2014)

Tourism is an attractive tool for economic development, especially in the developing world because tourism industry is considered as one of the largest and the most diverse industries in the world and it is one of the fastest growing sectors of the global economic. Many countries are seeking a way to improve their economic conditions; they see tourism as a major source of income, employment, and development of economic. The World Travel & Tourism Council (WTTC) researches assesses that the Travel & Tourism industry's contribution to GDP and jobs for 184 countries and 24 regions and economic groups in the world.

Keywords: Tourism, Developing Country, Tourist, Tourism Industry, Pro-poor tourism; Ppt; Sustainable tourism; Sustainable development; Economic growth.

Faculty of Law

Dept. of Public International law

371. The Right to Asylum Between Islamic Shari'Ah and International Refugee Law: Consequences for the Present Refugee

Ahmed Abou El-Wafa Mohamed

Max Planck Yearbook Of United Nations Law, Brill, (2014)

In Islam, all legitimate motives for asylum are valid. From its beginning, Islam has provided for the granting of refuge as well as the protection of refugees. The Islamic concept, practices and principles on the matter are clear and unambiguous. Islamic Shari'ah embraces a comprehensive set of rules concerning this topic on the one hand; on the other hand, the greatest number of refugees are actually Muslims and those hosting them are nearly all Muslim States. The refugees currently fleeing to Europe from Muslim States may be divided into two groups, namely: those pushed to flee their countries under threats of war, torture or persecution; and those motivated to improve their status quo. It is self-evident that the first ones are the 'true refugees' in the eyes of Islam as well as international refugee law.

Keywords: Islam; Refugees; Europe.

Faculty of Arts

Dept. of English Language and its Literature

372. The Egyptian Colloquial Poet as Popular Intellectual: A Differentiated Manifestation of Commitment

Randa Kfalaf Ahmed

Commitment and Beyond: Reflections On/of the Political in Arabic Literature Since the 1940's, Reichert Verlag, (2014)

There have been various representations of commitment in Arabic literature since the 1960's existing side-by-side. In distinction from the most salient models. Egyptian colloquial poets have contributed another representation of the intellectual who is more action-oriented and closely linked to place and class.

Keywords: The Egyptian Colloquial Poet As Popular Intellectual: A Differentiated Manifestation Of Commitment.

Res_id: 2082 C Res_Wcode: 1763 373. Reconstructing Gender in Post-Revolution Egypt

Shereen Saad

Rethinking Gender In Revolutions and Resistance: Lessons from the Arab World, Zed Books, (2014)

This article attempts to understand the process of generating novel constructs of gender that depend in their formation on the fierce tactical and discursive confrontation with a deep-rooted discourse of socio-political power. This hegemonic discourse has aimed at consolidating its power through several means, one of which is to constitute knowledge about women's bodies and subjectivities. However, the insistence of women (and men) to counter this discourse by 'occupying' the public sphere has turned these institutional discursive practices into sites of contestation and challenge. Paradoxically, while the dominant discourse offers a normative form of feminine subjectivity--claimed to be the only politically correct one--its organization and practices, mainly, 'gendered violence,' imply the possibility of reversal. The reverse discourse, or resistance discourse, has enabled women to subvert the concept of victimization into a concept of agency in order to augment political resistance, and to integrate the personal (body) with the political (revolutionary course). Far from being self-indicting, the testimonies of women subjected to violence and harassment prove that gender is being 'fabricated' by force in those incidents, and that 'silence' is coerced. The liberation of the body from the shackles of orthodox patriarchal discourse has helped women to 'occupy' the public space.

Keywords: Resistance; Revolution; Gender; Space; Body.

374. The Revolt of the Young: Essays by Tawfiq Al-Hakim

Mona Mohamed Ali

Book Published By Syracuse University Press, (2014)

This great book of essays is about the conflict between the generations. It also focuses on young people and how the older generations must give them a hand. There are many elements of autobiography including Al-Hakim's own conflict with his son

and how he managed to resolve their problems. It also foreshadows the 25 January Revolution. The Foreword is written by Prof. Roger Allen.

Keywords: Tawfiq Al-Hakim, Arabic Literature, Revolt, Revolution, Modern History Of Egypt, Youth Versus Older Generations.

375. She Resists: Body Politics Between Radical and Subaltern

Maha F. El Said

Rethinking Gender in Revolutions and Resistance Lessons from the Arab World, Zed Books, (2014)

The remarkable contribution of women in the Egyptian revolution of 25 January 2011 enthused a lot of research, in an attempt to re-examine and redefine the state of women in Egypt. Although the 25 of January seemed to have a feminist face, with prominent women activists in the forefront, typical to most revolutions, as the events progressed women were being relegated to the sidelines and even more seriously were being aggressively violated. Different ideas about Nationalism and Feminism were being contested; the political interest of women's agency and national interest were in the forefront of the debate. Women persisted in spite of the two misogynistic systems that came to power after the revolution, namely The Supreme Council of the Armed Forces (SCAF) (and The Muslim Brotherhood (MB)). Each of these two systems has practiced different forms of atrocities against women that led to a more forceful resistance by women. In the middle of this collective struggle, two Egyptian women chose to resist using their bodies for expression: Alia Magda El Mahdy, known as 'the nude blogger', and Sama el Masry, a belly dancer. Both attempted at breaking the power dynamics of social control over women's bodies and mind. Engaging with post-colonial and feminist theories 'this paper aims at exploring the reasons behind this incongruence reaction towards the two women. Despite the fact that both became "embodied subjects" in the struggle for democracy and freedom at a time of redefining gender role and the remaking of the nation, the effectiveness of their agency seems to be poles apart. Exploring their tactics of defying the cultural representation of the female body shows El Mahdy rooted in radical feminism and alien from popular appeal, while El Masry was entrenched in popular culture making her the subaltern agent that challenges power from within the culture of the grassroots.

Keywords: Gender; Popular culture; Subaltern.

376. The Pains and Pleasures of Translating Alice Into Arabic

Nadia Kholy

Alice in A World of Wonderlands, Oak, (2014)

The Possibility/Impossibility of Translating Alice in Wonderland into Arabic By Nadia El Kholy. This paper deals with the difficulties of translating Alice in Wonderland into Arabic. The text contains parodies, puns (especially homophones), wordplay, verbal humour, "speaking" names, as well as other elements of Carroll's creative style which appear almost on every page and result in paradoxically comic effects, making this book a real challenge for translators. In addition to the story's varied and distinctive use of style, special tone of voice, clear intertextuality

and the clever interplay between fiction and reality. In Wonderland, all kinds of phonological, morphological, lexical and grammatical “mistakes” or language tricks occur, and virtually everything is confused or (mis)taken for something else. The clever and witty implementation of pungent satires, cunning puzzles, nonsensical riddles, all contribute to the creation of an extremely challenging text to translate. My main concern when translating Alice was to see how much of all this ingenious play with words will/will not be lost in translation. I used my own intuition to catch the true meaning and intended message, lying at different levels behind the overall structure of the source text and tried to put them adequately into Arabic with the intention of not losing the entire flavour of Carroll’s play on words and at the same time maintaining a kind of domestication in the target language that will not alienate the child/adult reader from the text. I have endeavoured to retain in the Arabic translation as much as possible from this rich and unrivalled manipulation of language following a domestication strategy which inevitably entailed losses but also retained meaning.

Keywords: Transaltion; Alice; Children literature.

377. A Strategic use of Culture: Egyptian Women’s Subversion and Resignification of Gender Norms

Hala Sami

Rethinking Gender in Revolutions And Resistance: Lessons from the Arab World., Zed Books, (2014)

Egyptian women played a pivotal role in the 25th January, 2011 Revolution. However, the radical right-wing ruling party and regime which emerged in the wake of the Revolution, revealed an authoritarian political temper, which was not only inclined to marginalise women, by promising to relegate their role to that of hearth and home, but, like a ruthless juggernaut, it hoped to gradually obliterate the idiosyncrasy of the Egyptian cultural identity. The chapter proposes to discuss selected examples of emerging women’s activist resistance in the midst of the political upheaval that manifested itself after the Revolution. Significantly, many of the emerging resistant paradigms illustrate women’s resort to popular culture, which becomes both a springboard for resistance, as well as a tool of empowerment. Such politically active paradigms draw on their cultural heritage in the face of a regime that merely wished to exclude them from civil society and hence, to address them as hidden invisible entities. In such a context, women’s role in the society is a central and controversial issue, which constantly brings to the fore the public-private dialectic: while the radically conservative discourse principally interpellates women as merely home dwellers, the politically active female paradigms insist on equally securing their place in the public arena.

Keywords: Women’s activism; Cultural studies; Feminism; Revolution; Arab spring.

Dept. of French Language and its Literature

378. Les Debuts De L'autobiographie Propositions Contraversees

Amina hanim Rashid

Debuts En Comparaison, Editions Publisud, (2014)

j'ai également écrit un article publié dans ce recueil sous le titre les débuts de l'autobiographie dans le monde occidental et présente des exemples d'écriture de soi en arabe:

Keywords: Autobiographie; D'écriture; Recueil.

379. Figurations D’Adam Dans L’Écriture De La Palestine

Rania Mohamed Fathy Mohamed Abdou

Débuts En Comparaison, Publisud, (2014)

Titre: Figurations d’Adam dans l’écriture de La Palestine
Résumé : Le présent travail se propose d’étudier la réécriture du récit adamique dans La Porte du soleil d’Elias Khoury et Pourquoi as-tu laissé le cheval à sa solitude de Mahmoud Darwich, deux œuvres imprégnées des stigmates du drame palestinien. L’intertexte se développe grâce à la présence du nom propre qui peuple plusieurs endroits des deux textes, grâce aussi à ces multiples références au paradis perdu, aux interminables voyages sans jamais avoir le droit au retour, à la solitude jamais vaincue et à ce statut d’éternel étranger marquant l’itinéraire du Palestinien. Comme Adam, le Palestinien vit l’exil et le déracinement. Mais si les textes parlent du paradis perdu, ils mettent aussi en scène le paradis retrouvé : par la force des récits auxquels se consacre le protagoniste de La Porte au soleil et la magie des structures poétiques que déploie le poète, le Palestinien retrouve sa terre première... le paradis est reconnu.

Keywords: Elias khoury; Mahmoud Darwich; Intertextualité; Adam; Exil; Palestinien.

380. Pour Un Nouveau Rapport Au Littéraire

Salma Adel Mobarak

Littérature Média-génique Écriture, Musique Et Arts Visuels, L’harmattan, (2014)

La lecture est une activité de réception au cours de laquelle l’affect et l’intellect du lecteur sont constamment sollicités. Partant du constat que l’étudiant de lettres est amené aujourd’hui à devenir lecteur spécialiste appliquant méthodes, théories et concepts au texte littéraire sans avoir nécessairement le profil d’un lecteur ordinaire, cette recherche se propose de réfléchir aux possibilités d’accroître la réceptivité de l’étudiant à l’écrit littéraire en tirant profit de son expérience de spectateur cinématographique. L’hypothèse que cet article tend à développer est la suivante : En s’inspirant du modèle de réception cinématographique où interagissent la participation et la distanciation, nous pourrions glisser à une interrogation de nos traditions de lecture littéraire. Il s’agit de la recherche d’un nouvel équilibre entre les tendances affectives à la participation et les exigences d’objectivation propres à l’approche critique du texte littéraire. Un ensemble de textes de spécificité intermédiaire constituera un support à cette réflexion. Il s’agit des témoignages d’une génération d’écrivains contemporains interpellés par les Cahiers du cinéma, à qui la revue a demandé d’écrire un texte sur un film de leur choix. (De Baecque, 1995) Ils en ont rendu compte dans une série de nouvelles autobiographiques, Le Cinéma des écrivains, où le souvenir d’un film qui a marqué la vie, donne lieu à des lectures subjectives qui constituent des expériences de plongée littéraire dans la fiction cinématographique. Notre stratégie consiste à prendre ces œuvres comme support à une étude des mécanismes de la lecture

cinématographique qui seraient capables de stimuler nos modes de lecture littéraire et d'investir ce transfert dans l'expérience de l'enseignement.

Keywords: Littérature; Cinéma; Reception; Didactique.

381. Parcours Multiples D'un Fabliau Du Moyen Age

Ghrraa Hussein Mehanna

Débuts En Comparaison, Publisud, (2014)

Les *Perdrix*, fabliau du Moyen Age date du XIII^{ème} siècle. Cette étude présente deux parcours de ce fabliau à travers le temps et l'espace : le passage du fabliau au conte populaire et son passage de l'oral à l'écrit ou à la littérature de jeunesse. Nous soulignons aussi la présentation de la Femme dans le fabliau et dans le conte populaire et la socialisation du fabliau et son passage dans un contexte arabo-musulman dans un conte pour enfants dénué de toute dimension pédagogique.

Keywords: Fabliau; Conte Populaire; Littérature De Jeunesse; Femme.

382. Débuts En Comparaison

Salma Adel Mobarak

Publisud, (2014)

Par *Débuts* nous entendons aussi bien le ou les commencements de courants ou de genres littéraires dans les différentes cultures (roman, littérature populaire, roman philosophique, fable ou autobiographie), que les débuts ou incipit de textes, phrases inaugurales d'oeuvres littéraires ou débuts d'un style/d'une écriture (ironique, romantique, réaliste ou précieuse), mais aussi dans le domaine de l'art, théâtre ou cinéma : écrits sur les débuts du 7^{ème} art ou première performance d'une jeune cantatrice, de l'innovation linguistique : début d'une écriture en arabe dialectal ou introduction d'une presse francophone en Egypte, ou encore début absolu : Adam en littérature ! Etudes précises qui, nous le souhaitons, devraient nous conduire à émettre des hypothèses plus générales concernant le rapport entre début et concepts proches ou opposés, origine ou fin, ruptures ou continuités. Peut-on trouver dans la formulation d'un début le programme d'un développement ou d'une fin, d'une culture ou d'une manière de vivre ? Et surtout, dans quelle mesure est-il possible de parler de « début » sans aborder le problème des conditions de possibilité d'un début dans un contexte culturel donné ? Ou encore mettre en cause la notion même de « début » ? Questions fondamentales qui animeront le dialogue des textes présentés dans ce volume, dans leur différence et leur continuité.

Keywords: Débuts; Comparaison; Littérature Arabe; Littérature Française.

383. Traduction, Transformation Et Réécriture D'Une Oeuvre Initiale: Kalila Et Dimna Entre Les Fables Indiennes De Pilpay, Le Kalila Arabe D'Ibn Al Muqaffa' Et Les Fables De La Fontaine

Hanaa Farouk

Debuts En Comparaison, Editions Publisud, (2014)

La traduction, comme texte second, dérivé d'un texte-source, est-elle une espèce de redite, une forme de redondance ou au

contraire une forme d'écriture susceptible, comme le dit Goethe, de « revivifier » l'original, de « pérenniser » le texte littéraire : d'assurer sa survie, de l'ouvrir à la pluralité de sens, à la multiplication des lectures et des lecteurs ? Un traducteur/adaptateur du calibre d'Ibn Al Muqaffa' est-il un copieur, un auteur de seconde main ou un co-écrivain, créateur d'un texte unique : différent du texte de départ ? Et quelles mutations en particulier fait-il subir aux fables indiennes ? Celles-ci portent-elles sur le fond, la forme ou la visée de l'oeuvre initiale ? Et qu'apporte finalement La Fontaine qui se réclame de l'héritage des fables indiennes à l'édifice de cette oeuvre- source initiatrice et initiale ? Simple convocation de modèles anciens ou introduction d'une esthétique nouvelle ?

Keywords: Traduction, Transformation Et Réécriture.

Dept. of German Language and its Literature

384. Überlegungen Zu Journalistischen Darstellungsformen

Mona Rashad Noueshi

Ministry of Education, (2014)

The present study gives an overview of the journalistic text types in the press and their classification. It also analyses specific linguistic and stylistic characteristics of the press reports.

Keywords: Stylistics; Linguistic; Journalistic texts; Textlinguistic.

385. ZiG. Zeitschrift fuer interkulturelle Germanistik

Dina Aboufotouh Salama

Transcript Verlag Bielefeld/ Germany, (2014)

The aim of this study is to analyze the image of dark women in the *bispiel Die Königin von Mohrenland* written by Der Stricker, one of the most popular medieval poets. The paper explores and detects the means by which the Moorish queen and her folk are represented and instrumentalized in the short epic entitled *bispiel*. The depiction of the Moor as the 'dark other', 'dark evil' etc. or an 'alter ego' illustrates premodern approaches to the construction of a stereotype of dark people based on racist, ethnic and religious differences. Such stereotypical depiction contributes to the establishment of the dark other as an enemy. The research questions are discussed from an intercultural perspective which encompasses a discussion of gender, identity and colour (white/dark) and at the same time taking into consideration the historical background of confrontations between the orient and the occident in medieval history.

Keywords: Der stricker; Die königin vom Mohrenland; Blackness; medieval racism; Constructing the imago of the enemy; The dark other.

Dept. of Japanese Language and its Literature

386. Grammar Syllabus of Elementary Japanese for Arabic Speakers

Waleed Farouk Ibrahim

Coco Publication, (2014)

With the increase in numbers of students who study Japanese language in Arab countries, there is an urgent need to create a syllabus for students of Arabic native speakers. This syllabus should consider the needs and the motives of those students, and also their linguistic and cultural background. This Paper aims to provide a general perception about creating new grammatical syllabus of elementary Japanese for Arabic speaker learners, especially for students who are studying Japanese language as a major field of study.

This paper is concerned by putting the grammatical rules in a suitable order to make the student able to complete the desired level in the least period of time and with the maximum degree of understanding. This paper suggests the "inverted pyramid" method to arrange grammatical rules with the beginners' level. Also tried to emphasize the importance of concentrating on the semantic aspects of the grammatical rules and sentence patterns, and suggests the idea of assembling similarities of grammatical expressions to recognize the differences, and using the "contextual theory" by "Kawaguchi (2003)" which enable the student to recognize the differences between remembering the similarities of grammatical rules as an objective of the syllabus for grammar.

Keywords: Elementary Japanese; Grammatical rules; Syllabus; Semantic aspects.



Cairo University

International Publications Awards Cairo University



APPENDIX

Appendix 1**Statistical Data**

List of top 20 authors according to the number of publications
(Year 2015)

Rank	Name	Faculty	No. of Pub.
1	Ali Yehia Ellithi Kamel	Faculty of Science	64
2	Gehad Genidy Mohamed Genidy	Faculty of Science	25
3	Sobhy Mohamed Gomaa	Faculty of Science	21
4	Laila Ahmed Rashed Ismael	Faculty of Medicine	20
5	Gamal El-din Essmat Muhamed Gamil	Faculty of Medicine	19
5	Abd El-Aty Mostafa Abd El-Aty	Faculty of Veterinary Medicine	19
7	Maha Abdel Monem Hegazy	Faculty of Pharmacy	18
8	Mohamed Ali Ali Farag	Faculty of Pharmacy	16
9	Hala Elsayed Elsayed Zaazaa	Faculty of Pharmacy	15
10	hayam Mahmoud Lotfy Ibrahim	Faculty of Pharmacy	14
10	Eid Hassan Abd Elrahman Doha	Faculty of Science	14
12	Foad Abd-Elmoniem Abd-Allah Abd-Allah	Faculty of Medicine	13
12	Mohamed Khaled Mohamed Abd El-Rahman	Faculty of Pharmacy	13
12	Mohamed Ali Ahmed Mohamed	Faculty of Science	13
15	Thoraya Abd el Reheem Farghaly	Faculty of Science	12
16	Ahmed Gomaa Ahmed Radwan	Faculty of Engineering	11
16	Hatem Hussein Magdy Mohamed Zeineldin	Faculty of Engineering	11
16	Naglaa M Kamal	Faculty of Medicine	11
16	Olfat Gamil Shaker	Faculty of Medicine	11
16	Hosni Khairy Salem Barghash	Faculty of Medicine	11

List of top 20 authors according to the sum of their impact factor
(Year 2015)

Rank	Name	Faculty	Sum IF
1	Ali Yehia Ellithi Kamel	Faculty of Science	356.79
2	Foad Abd-Elmoniem Abd-Allah Abd-Allah	Faculty of Medicine	213.91
3	Maher Fathy El-Kady	Faculty of Science	99.71
4	Gamal El-din Essmat Muhamed Gamil	Faculty of Medicine	72.55
5	HOSNI KHAIRY SALEM BARGHASH	Faculty of Medicine	58.67
6	Gehad Genidy Mohamed Genidy	Faculty of Science	45.93
7	Mohamed Ali Ali Farag	Faculty of Pharmacy	44.61
8	Naglaa M Kamal	Faculty of Medicine	43.99
9	Zeinab Ataia Abd el-slam Ashour	Faculty of Medicine	43.07
10	Abd El-Aty Mostafa Abd El-Aty	Faculty of Veterinary Medicine	42.98
11	Laila Ahmed Rashed Ismael	Faculty of Medicine	37.12
12	Rabab Mohamed Gaafar Abdel-Motaled	The National Cancer Institute	36.34
13	Mohamed Khaled Mohamed Abd El-Rahman	Faculty of Pharmacy	36.3
14	Samy Abbas Madbouly Faragg	Faculty of Science	35.99
15	Dalia Mohamed Mohamed Dawoud	Faculty of Pharmacy	34.9
16	Hussien Hassan Rizk	Faculty of Medicine	33.85
17	Sobhy Mohamed Gomaa	Faculty of Science	33.24
18	Amani Ali El Kholy	Faculty of Medicine	32.82
19	Marwa Sayed Abdo Mostafa Meshaal	Faculty of Medicine	31.23
20	Hala Elsayed Elsayed Zaazaa	Faculty of Pharmacy	30.85

List of top 20 authors according to highest single impact factor
(Year 2015)

Rank	Name	Faculty	Max. IF
1	Foad Abd-Elmoniem Abd-Allah Abd-Allah	Faculty of Medicine	45.217
2	Maher Fathy El-Kady	Faculty of Science	33.383
3	Sawsan Hassan	Faculty of Medicine	29.352
3	laila abdel moteleb mohamed selim	Faculty of Medicine	29.352
3	Iman Gamal El Din Mohamed Mahmoud Abdelbaky	Faculty of Medicine	29.352
6	Rabab Mohamed Gaafar Abdel-Motaied	The National Cancer Institute	24.69
7	Sayed Youssef Sayed Nagy	Faculty of Science	20.523
8	Ismail Hassan Ismail	Faculty of Science	19.679
9	Dalia Mohamed Mohamed Dawoud	Faculty of Pharmacy	17.455
10	Yasser Mohamed Elsayed Metwally Abdelrahman	Faculty of Pharmacy	15.843
11	Amani Ali El Kholy	Faculty of Medicine	15.073
11	Hussien Hassan Rizk	Faculty of Medicine	15.073
11	Zeinab Ataia Abd el-slam Ashour	Faculty of Medicine	15.073
11	Azza Abdel Moniem Farrag Kenawy	Faculty of Medicine	15.073
11	Abdalla Amin Selim Elagha	Faculty of Medicine	15.073
11	marwa sayed abdo mostafa meshaal	Faculty of Medicine	15.073
11	Gamal El-din Essmat Muhamed Gamil	Faculty of Medicine	14.66
18	Mohamed Ali Ali Farag	Faculty of Pharmacy	13.244
19	Ali Mohamed Abdel-Mageed AboelYazed Names	Faculty of Science	12.113
20	Nermeen Mouftah Galal	Faculty of Medicine	11.476

Statistical Data

List of faculties with highest score of impact factor
(Year 2015)

Faculty	Count	%	Tot. IF	%	Avg.	Max.	Min.
Faculty of Science	619	29.43	1398.21	34.33	2.259	33.383	0.181
Faculty of Medicine	406	19.31	1067.973	26.22	2.630	45.217	0.286
Faculty of Pharmacy	293	13.93	715.594	17.57	2.442	17.455	0.292
Faculty of Engineering	196	9.32	247.07	6.07	1.261	6.498	0.25
Faculty of Veterinary Medicine	137	6.51	152.591	3.75	1.114	5.467	0.19
Faculty of Agriculture	81	3.85	91.787	2.25	1.133	6.96	0.273
The National Cancer Institute	53	2.52	162.258	3.98	3.061	24.69	0.928
Faculty of Nursing	52	2.47	0.765	0.02	0.015	0.765	0.765
National Institute of Laser Enhanced Sciences	50	2.38	104.634	2.57	2.093	7.394	0.772
Faculty of Arts	44	2.09	0	0	0.000	0	0
Faculty of Economics and Political Science	36	1.71	15.111	0.37	0.420	1.395	0.292
Faculty of Physical Therapy	34	1.62	32.671	0.8	0.961	3	0.235
Faculty of Archaeology	25	1.19	13.927	0.34	0.557	3	0.506
Faculty of Computers and Information	24	1.14	21.128	0.52	0.880	5.578	0.39
Faculty of Commerce	17	0.81	5.732	0.14	0.337	2.554	0.736
Faculty of Oral Dental Medicine	15	0.71	28.092	0.69	1.873	4.01	0.531
Institute of Statistical Studies and Research	13	0.62	4.791	0.12	0.369	1.738	0.14
Faculty of Kindergarten	3	0.14	9.419	0.23	3.140	3.476	2.723
Institute of African Research and Studies	3	0.14	0	0	0.000	0	
Faculty of Law	1	0.05			0.000		
The Institute of Educational Studies and Research	1	0.05	0.661	0.02	0.661	0.661	
Total	2103	100	4072.414	100	1.936		

Statistical Data

List of number of publications (2006-2010)

Faculty	2006	2007	2008	2009	2010	Total
Science	142	162	241	242	290	1077
Medicine	49	64	124	154	226	617
Engineering	56	79	109	140	131	515
Pharmacy	27	40	77	104	126	374
Agriculture	8	14	35	83	75	215
Veterinary Medicine	11	20	47	53	86	217
National Cancer Institute	9	16	16	27	37	105
National Institute of Laser Enhanced Sciences	13	11	9	21	27	81
Economics and Political Science	13	14	13	8	10	58
Arts	7	7	17	15	15	61
Statistical Studies and Research Institute	8	6	11	7	4	36
Archaeology	1	2	5	16	19	43
Computers and Information	2	3	4	11	6	26
Oral and Dental Medicine			1	15	19	35
Physical Therapy					1	1
Nursing			1	4	2	7
Commerce	4	2	1	4	6	17
Mass Communication			1		3	3
Educational Studies and Research					2	2
African Research and Studies Institute		1	2			3
Dar Al-Oloum	1					1
Law						0
Regional and Urban Planning						0
Faculty of Kindergarten						0
Total	351	441	814	926	1089	4635

Faculty	2011	2012	2013	2014	2015	Total
Science	242	290	425	435	619	957
Medicine	154	226	350	324	406	730
Engineering	140	131	198	167	196	1181
Pharmacy	104	126	224	238	293	1156
Agriculture	83	75	136	52	81	627
Veterinary Medicine	53	86	136	72	137	566
National Cancer Institute	27	37	52	37	53	260
National Institute of Laser Enhanced Sciences	21	27	33	29	50	172
Economics and Political Science	8	10	6	29	36	116
Arts	15	15	22	24	44	127
Statistical Studies and Research Institute	7	4	17	5	13	139
Archaeology	16	19	26	16	25	101
Computers and Information	11	6	32	20	24	93
Oral and Dental Medicine	15	19	23	17	15	99
Physical Therapy		1	3	16	34	44
Nursing	4	2	6	30	52	38
Commerce	4	6	17	11	17	73
Mass Communication		3	1			4
Educational Studies and Research		2	2	5	1	8
African Research and Studies Institute			3	8	3	22
Dar Al-Oloum						2
Law			1	5	1	2
Regional and Urban Planning						1
Faculty of Kindergarten				1	3	1
Total	926	1089	1712	1541	2013	6519

Appendix 2

Top 50 authors of Cairo University (According to no. of publications)

Rank	Author Name	Affiliation	No. of Pub
1	Shafik, Ali A.	Faculty of Medicine	440
2	Aboul Ella Hassanien	Faculty of Computers and Information	439
3	Ahmed M Soliman	Faculty of Engineering	403
4	Essam E.Khalil	Faculty of Engineering	274
5	Yousry Moustafa Issa	Faculty of Science	240
6	A. M. Abd El-Aty	Faculty of Veterinary Medicine	197
7	Said Rezk Grace	Faculty of Engineering	182
8	Gehad Genidy Mohamed Genidy	Faculty of Science	179
9	Ahmad Sami Abdelshakour Shawali	Faculty of Science	178
10	Ahmed Galal	Faculty of Science	175
11	Ahmed, Moala Ashfaq	Cairo University, Department of Physics, Cairo, Egypt	171
12	Olfat Gamil Shaker	Faculty of Medicine	168
13	Hesham G. Al-Inany	Faculty of Medicine	161
14	Yasser Mostafa Ibrahim Kadah	Faculty of Engineering	160
15	El-Sayed Mohamed Abdel-Rahman	Faculty of Science	156
16	M. Waheed A. Badawy	Faculty of Science	152
17	Ahmed Gomaa Ahmed Radwan	Faculty of Engineering	150
18	El-Zahraa Mahmoud El-Sayed	Faculty of Physical Therapy	148
19	Mohamed Mohamed Shoukry	Faculty of Science	126
20	Abdou Osman Abdelhamid	Faculty of Science	121
21	Ahmed A. Soliman	Faculty of Science	116
21	Taymour Mostafa	Faculty of Medicine	116
23	Fathy A. Abdel-Ghaffar	Faculty of Science	115
24	Laila Ahmed Rashed	Faculty of Medicine	114
26	Hussein Mostafa Mosa Khaled	The National Cancer Institute	113
26	Mohamad Abdel Harith Mohamad	National Institute of Laser Enhanced	113

Rank	Author Name	Affiliation	No. of Pub
		Sciences	
28	Ahmad Mahmoud Farag	Faculty of Science	112
29	Rafat Milad Mohareb	Faculty of Science	110
30	Kamal M. Dawood	Faculty of Science	108
31	Amr Amin Adly	Faculty of Engineering	105
32	Ismail A Shafik	Faculty of Medicine	104
33	Abdel Rahman Abu Zekri	The National Cancer Institute	103
34	Magdy Sabaa Wadid Farag	Faculty of Science	102
35	Mohamed Abd El-Gawad Abd El-Salam Zayed	Faculty of Science	100
36	Eid Hassan Abd Elrahman Doha	Faculty of Science	95
37	Rashika El Ridi	Faculty of Science	94
38	Maher Zaki Elsabee	Faculty of Science	89
39	Mohammed Nafie	Faculty of Engineering	85
40	Tamer Abdel Mottalib Farid ElBatt	Faculty of Engineering	84
41	Essam Abdel Sattar	Faculty of Pharmacy	82
41	Samy A. Madbouly	Faculty of Science	82
43	Ahmed Helmy Mahmoud Elwahy	Faculty of Science	80
44	Mohamed S. El-Deab	Faculty of Science	78
45	Nada Farouk Ahmed Atta	Faculty of Science	77
46	Mohamed Ali Farag	Faculty of Pharmacy	75
46	Rany shamloul	Faculty of Medicine	75
46	Thoraya Abdel Reheem Farghaly Mohamed	Faculty of Science	75
49	Abdel Latif Mohamed Ragae Elshafei	Faculty of Engineering	74
50	Nour Tawfik Abdel Ghani	Faculty of Science	71
51	Gamal R. Saad	Faculty of Science	70

**Top 50 authors of Cairo University
(According to total no. of citations)**

Rank	Author Name	Affiliation	Tot. Citation
1	Ahmed M Soliman	Faculty of Engineering	5093
2	Shafik, Ali A.	Faculty of Medicine	4058
3	Ramy Karam Aziz	Faculty of Pharmacy	3941
4	Gehad Genidy Mohamed Genidy	Faculty of Science	2834
5	Mohamed Ali Farag	Faculty of Pharmacy	2634
6	Ahmed Galal	Faculty of Science	2607
7	Hussein Mostafa Mosa Khaled	The National Cancer Institute	2454
8	Hesham G. Al-Inany	Faculty of Medicine	2433
9	M. Waheed A. Badawy	Faculty of Science	2425
10	Maher Fathy El-Kady	Faculty of Science	2263
11	Mohamed S. El-Deab	Faculty of Science	2147
12	Ahmad Sami Abdelshakour Shawali	Faculty of Science	2006
13	Yousry Moustafa Issa	Faculty of Science	1945
14	Abd El-Aty M. Abd El-Aty	Faculty of Veterinary Medicine	1845
15	El-Sayed Mohamed Abdel-Rahman	Faculty of Science	1833
16	Kamal M. Dawood	Faculty of Science	1649
17	Rabab Mohamed Gaafar	The National Cancer Institute	1617
18	Ahmed A. Soliman	Faculty of Science	1586
19	Eid Hassan Abd Elrahman Doha	Faculty of Science	1538
20	Maher Zaki Elsabee	Faculty of Science	1534
21	Ahmed, Moala Ashfaq	Cairo University, Department of Physics, Cairo, Egypt	1507
22	Ahmad Mahmoud Farag	Faculty of Science	1496
23	Taymour Mostafa	Faculty of Medicine	1455
24	Mohamed Mohamed Shoukry	Faculty of Science	1451
26	Said Rezk Grace	Faculty of Engineering	1405
27	Nada Farouk Ahmed Atta	Faculty of Science	1327

Rank	Author Name	Affiliation	Tot. Citation
28	Ahmed Gomaa Ahmed Radwan	Faculty of Engineering	1294
29	Samy A. Madbouly	Faculty of Science	1262
30	Abdel Rahman Abu Zekri	The National Cancer Institute	1226
31	Fathy A. Abdel-Ghaffar	Faculty of Science	1185
32	Aboul Ella Hassanien	Faculty of Computers and Information	1182
33	Amal Mohamed Ibrahim El Beshlawy	Faculty of Medicine	1174
34	Rany shamloul	Faculty of Medicine	1155
35	Radwan S. Farag	Faculty of Agriculture	1150
36	Rashika El Ridi	Faculty of Science	1136
37	Olfat Gamil Shaker	Faculty of Medicine	1128
38	Magdy Sabaa Wadid Farag	Faculty of Science	1097
39	Mohamad Abdel Harith Mohamad	National Institute of Laser Enhanced Sciences	1086
40	Nour Tawfik Abdel Ghani	Faculty of Science	1021
41	Yasser Mostafa Ibrahim Kadah	Faculty of Engineering	1016
42	Laila Ahmed Rashed	Faculty of Medicine	971
43	Tamer Abdel Mottalib Farid ElBatt	Faculty of Engineering	954
44	Amany Mohamed Fekry	Faculty of Science	912
45	Mohy Saad Mansour	Faculty of Engineering	898
46	Mohamed Abd El-Gawad Abd El-Salam Zayed	Faculty of Science	865
47	Rafat Milad Mohareb	Faculty of Science	861
48	Fakiha El-Taib Heakal	Faculty of Science	847
49	Mohamed Farid Abdel-Wahab	Faculty of Medicine	846
50	Nadia Ahmed Mohamed	Faculty of Science	814
51	Amr Amin Adly	Faculty of Engineering	813
52	Fathy Mohamed Abdelrazek	Faculty of Science	807
53	Abdou Osman Abdelhamid	Faculty of Science	759
54	Mahmoud Mohamed Ghorab	Faculty of Pharmacy	736

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(According to h-index)**

Rank	Author Name	Affiliation	h-index
1	Ahmed M Soliman	Faculty of Engineering	35
2	Shafik, Ali A.	Faculty of Medicine	31
3	Gehad Genidy Mohamed Genidy	Faculty of Science	29
3	Hesham G. Al-Inany	Faculty of Medicine	29
5	Ahmed Galal	Faculty of Science	28
5	M. Waheed A. Badawy	Faculty of Science	28
7	Ramy Karam Aziz	Faculty of Pharmacy	24
7	Mohamed S. El-Deab	Faculty of Science	24
7	Eid Hassan Abd Elrahman Doha	Faculty of Science	24
10	Mohamed Ali Farag	Faculty of Pharmacy	23
10	Hussein Mostafa Mosa Khaled	The National Cancer Institute	23
10	Ahmad Sami Abdelshakour Shawali	Faculty of Science	23
13	A. M. Abd El-Aty	Faculty of Veterinary Medicine	22
13	Kamal M. Dawood	Faculty of Science	22
13	Nada Farouk Ahmed Atta	Faculty of Science	22
13	Ahmed Gomaa Ahmed Radwan	Faculty of Engineering	22
17	El-Sayed Mohamed Abdel-Rahman	Faculty of Science	21
17	Ahmad Mahmoud Farag	Faculty of Science	21
17	Mohamed Mohamed Shoukry	Faculty of Science	21
20	Yousry Moustafa Issa	Faculty of Science	20
20	Ahmed A. Soliman	Faculty of Science	20
20	Maher Zaki Elsabee	Faculty of Science	20
20	Taymour Mostafa	Faculty of Medicine	20
20	Abdel Rahman Abu Zekri	The National Cancer Institute	20
20	Magdy Sabaa Wadid Farag	Faculty of Science	20
20	Nour Tawfik Abdel Ghani	Faculty of Science	20
28	Ahmed, Moala Ashfaq	Cairo University, Department of Physics, Cairo, Egypt	19
28	Said Rezk Grace	Faculty of Engineering	19
28	Samy A. Madbouly	Faculty of Science	19

Rank	Author Name	Affiliation	h-index
28	Amal Mohamed Ibrahim El Beshlawy	Faculty of Medicine	19
28	Rany shamloul	Faculty of Medicine	19
28	Rashika El Ridi	Faculty of Science	19
28	Mohamad Abdel Harith Mohamad	National Institute of Laser Enhanced Sciences	19
35	Fathy A. Abdel-Ghaffar	Faculty of Science	18
35	Olfat Gamil Shaker	Faculty of Medicine	18
35	Amany Mohamed Fekry	Faculty of Science	18
38	Mohamed Abd El-Gawad Abd El-Salam Zayed	Faculty of Science	17
38	Mohamed Farid Abdel-Wahab	Faculty of Medicine	17
38	Nadia Ahmed Mohamed	Faculty of Science	17
38	Fawzy Ali Attaby	Faculty of Science	17
38	Hany El-Shemy	Faculty of Agriculture	17
43	Rabab Mohamed Gaafar	The National Cancer Institute	16
43	Mohy Saad Mansour	Faculty of Engineering	16
43	Rafat Milad Mohareb	Faculty of Science	16
43	Abeer A. Bahnasy	The National Cancer Institute	16
43	Hossam El-Din Saad El-Beltagi	Faculty of Agriculture	16
43	Ahmed Abdo El-Sherif	Faculty of Science	16
49	Laila Ahmed Rashed	Faculty of Medicine	15
49	Fakiha El-Taib Heakal	Faculty of Science	15
49	Mahmoud Mohamed Ghorab	Faculty of Pharmacy	15
49	Essam Abdel Sattar	Faculty of Pharmacy	15
49	Gamal R. Saad	Faculty of Science	15
49	Hala Gamil El-Shobaky	Faculty of Science	15

Appendix 3

Top 5 authors of Cairo University Faculties (According to no. of publications from Top 50)

1- Faculty of Engineering,

Rank	Author Name	No. of Pub
1	Ahmed M Soliman	403
2	Essam E.Khalil	274
3	Said Rezk Grace	182
4	Yasser Mostafa Ibrahim Kadah	160
5	Ahmed Gomaa Ahmed Radwan	150

2- Faculty of Science,

Rank	Author Name	No. of Pub
1	Yousry Moustafa Issa	240
2	Gehad Genidy Mohamed Genidy	179
3	Ahmad Sami Abdelshakour Shawali	178
4	Ahmed Galal	175
5	Ahmed, Moala Ashfaq	171

3- Kasr El-Aini School of Medicine,

Rank	Author Name	No. of Pub
1	Shafik, Ali A.	440
2	Olfat Gamil Shaker	168
3	Hesham G. Al-Inany	161
4	Taymour Mostafa	116
5	Laila Ahmed Rashed	114

4- Faculty of Pharmacy,

Rank	Author Name	No. of Pub
1	Essam Abdel Sattar	82
2	Mohamed Ali Farag	75
3	Ramy Karam Aziz	57
4	Hany W. Darwish	53
5	Mahmoud Mohamed Ghorab	42

5- National Cancer Institute,

Rank	Author Name	No. of Pub
1	Hussein Mostafa Mosa Khaled	113
2	Abdel Rahman Abu Zekri	103
3	Mohamed Saad Zaghloul	72
4	Abeer A. Bahnasy	62
5	Rabab Mohamed Gaafar	47

6- Natl. Inst. of Laser Enhanced Sci.

Rank	Author Name	No. of Pub
1	Mohamad Abdel Harith Mohamad	113
2		
3		
4		
5		

7- Faculty of Veterinary Medicine,

Rank	Author Name	No. of Pub
1	A. M. Abd El-Aty	197
2	Mohamad Warda	35
3		
4		
5		

8- Faculty of Agriculture

Rank	Author Name	No. of Pub
1	Radwan S. Farag	68
2	Hany A. El-Shemy	61
3	Hossam El-Din Saad El-Beltagi	50
4		
5		

9- Institute of Statistical Studies and Research

Rank	Author Name	No. of Pub
1	Hesham Ahmed Hefny	22
2	Abdul Hady Nabih Ahmed	14
3	Samir Kamel Ashour	12
4	Amal Soliman Hassan	12
5	Abdallah Mohamed Abdelfattah	8

10- Faculty of Computers and Information

Rank	Author Name	No. of Pub
1	Aboul Ella Hassanien	439
2		
3		
4		
5		

11- Faculty of Physical Therapy

Rank	Author Name	No. of Pub
1	El-Zahraa Mahmoud El-Sayed	148
2		
3		
4		
5		

Top 5 authors of Cairo University Faculties (According to total no. of citations from Top 50)

1- Kasr El-Aini School of Medicine,

Rank	Author Name	Tot. Citation
1	Shafik, Ali A.	4,058
2	Hesham G. Al-Inany	2,433
3	Taymour Mostafa	1,455
4	Amal Mohamed Ibrahim El Beshlawy	1,174
5	Rany shamloul	1,155

2- Faculty of Science,

Rank	Author Name	Tot. Citation
1	Gehad Genidy Mohamed Genidy	2,834
2	Ahmed Galal	2,607
3	M. Waheed A. Badawy	2,425
4	Maher Fathy El-Kady	2,263
5	Mohamed S. El-Deab	2,147

3- Faculty of Engineering,

Rank	Author Name	Tot. Citation
1	Ahmed M Soliman	5,093
2	Said Rezk Grace	1,405
3	Ahmed Gomaa Ahmed Radwan	1,294
4	Yasser Mostafa Ibrahim Kadah	1,016
5	Tamer Abdel Mottalib Farid ElBatt	954

4- National Cancer Institute,

Rank	Author Name	Tot. Citation
1	Hussein Mostafa Mosa Khaled	2,454
2	Rabab Mohamed Gaafar	1,617
3	Abdel Rahman Abu Zekri	1,226
4	Abeer A Bahnasy	727
5	Mohamed Saad Zaghloul	674

5- Faculty of Pharmacy,

Rank	Author Name	Tot. Citation
1	Ramy Karam Aziz	3,941
2	Mohamed Ali Farag	2,634
3	Mahmoud Mohamed Ghorab	736
4	Essam Abdel Sattar	726
5	Hanan Salah El-Din El-Abhar	644

6- Natl. Inst. of Laser Enhanced Sci.,

Rank	Author Name	Tot. Citation
1	Mohamed Abdel Hareth Mohamed	1,086
2		
3		
4		
5		

7- Faculty of Veterinary Medicine,

Rank	Author Name	Tot. Citation
1	A. M. Abd El-Aty	1,845
2	Mohamad Warda	588
3		
4		
5		

8- Faculty of Agriculture,

Rank	Author Name	Tot. Citation
1	Radwan S. Farag	1150
2	Hany A. El-Shemy	690
3	Hossam El-Din Saad El-Beltagi	659
4		
5		

9- Institute of Statistical Studies and Research

Rank	Author Name	Tot. Citation
1	Abdul Hady Nabih Ahmed	31
2	Hesham Ahmed Hefny	21
3	El-Houssainy A. Rady	20
4	Abdallah Mohamed Abdelfattah	15
5	Amal Soliman Hassan	11

10- Faculty of Computers and Information

Rank	Author Name	Tot. Citation
1	Aboul Ella Hassanien	1,182
2		
3		
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5		

**Top 5 authors of Cairo University Faculties
(According to h-index from Top 50)**

1-Faculty of Engineering,

Rank	Author Name	h_Index
1	Ahmed M Soliman	35
2	Ahmed Gomaa Ahmed Radwan	22
3	Said Rezk Grace	19
4	Mohy Saad Mansour	16
5		

2- Faculty of Science,

Rank	Author Name	h_Index
1	Gehad Genidy Mohamed Genidy	29
2	Ahmed Galal	28
3	M. Waheed A. Badawy	28
4	Mohamed S. El-Deab	24
5	Eid Hassan Abd Elrahman Doha	24

3- Kasr El-Aini School of Medicine,

Rank	Author Name	h_Index
1	Shafik, Ali A.	31
2	Hesham G. Al-Inany	29
3	Taymour Mostafa	20
4	Amal Mohamed Ibrahim El Beshlawy	19
5	Rany shamloul	19

4- National Cancer Institute,

Rank	Author Name	h_Index
1	Hussein Mostafa Mosa Khaled	23
2	Abdel Rahman Abu Zekri	20
3	Rabab Mohamed Gaafar	16
4	Abeer A. Bahnasy	16
5	Mohamed Saad Zaghloul	14

5- Faculty of Pharmacy,

Rank	Author Name	h_Index
1	Ramy Karam Aziz	24
2	Mohamed Ali Farag	23
3	Mahmoud Mohamed Ghorab	15
4	Essam Abdel Sattar	15
5	Hanan Salah El-Din El-Abhar	11

6- Natl. Inst. of Laser Enhanced Sci.

Rank	Author Name	h_Index
1	Mohamed Abdel Hareth Mohamed	19
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7- Faculty of Veterinary Medicine,

Rank	Author Name	h_Index
1	A. M. Abd El-Aty	22
2	Mohamad Warda	14
3		
4		
5		

8- Faculty of Agriculture

Rank	Author Name	h_Index
1	Hany El-Shemy	17
2	Hossam El-Din Saad El-Beltagi	16
3	Radwan S. Farag	14
4		
5		



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