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The effects of vitamin D supplementation on ADHD (Attention Deficit Hyperactivity Disorder) in 6–13 year-old students: A randomized, doubleblind, placebo-controlled study

Amirmansour Alavi Naeini[a], Forough Fasihi[a], Mostafa Najafi[b], Mohammad Reza Ghazvini[c] and Akbar Hasanzadeh[d]
[a,b,d]Isfahan University of Medical Sciences, Iran
[c]National Institute of Health Research, Iran

Introduction: Attention Deficit Hyperactivity Disorder (ADHD) is a common mental disorder in children. Drug treatment is the most prevalent method used to control it; however, considering the low efficacy and frequent side effects of current drugs, more attempts are needed to replace them with safer agents. Several studies have shown the beneficial role of micronutrients such as vitamin D in development and improving the performance of neuronal system. This research intended to study the effects of vitamin D supplementation in 6–13 year-old students with ADHD.

Methods: In this double-blind parallel clinical trial, the subjects were selected from among 6–13 year-old students with ADHD diagnosed by a child psychiatry specialist. Vitamin D3 supplements (1000 IU) or placebo given daily to 70 subjects for three months. ADHD symptoms were evaluated before and after the intervention using Conners Parent Questionnaire (CPQ), the Strengths and Difficulties Questionnaire Teacher Version (SDQT), the Strengths and Difficulties Questionnaire Parent Version (SDQP) and Continuous performances Test (CPT) scores.

Results: The mean scores of the CPQ, SDQP and SDQT showed a significant difference in the two groups after intervention ($p < 0.05$). The impulsivity mean scores of the CPT after intervention showed statistical significance ($p =0.002$), but the attention ($p =0.11$) and mean reaction time ($p =0.19$) mean scores did not.

Conclusions: Vitamin D supplementation not only improves some behavioral problems but may prevent exacerbation in some symptoms of the disorder and reduce impulsivity.

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TMEM 143 gene function characterization-possible role in glucose hemostasis

Fouad Azizi$, Ilham bettahi*, Manjunath Ramanjaneya*, Jerobin Jaya Komar*, Abdelilah Arredouani†, Kodappully S. Siveen$, Mohamed Chikri†, Michael Kulinski$, Ramzi M. Mohammad#, Abdul Badi Abou Samra* and Martin Steinhoff$
$Translational Research Institute, Qatar
*Qatar Metabolic Institute (QMI), Qatar
†Qatar Biomedical Research Institute, Qatar
#Wayne State University, USA

TMEM-143 (Transmembrane protein 143) human gene is located in the Chr19q13.33 chromosomal region, which is known to be associated with risk of type-2 diabetes and cancer. TMEM-143 gene is translated into a protein of unknown function, predicted to contain a mitochondrial signal sequence and to reside as an integral membrane protein (dual-pass protein) in the mitochondria. In this study, we sought to elucidate TMEM-143 expression pattern, sub-cellular localization, and function. Screening of normal human tissues by RT-PCR revealed a high expression of TMEM-143 gene in metabolic tissues such as skeletal muscle tissue. RT-PCR and western blot revealed that undifferentiated C2C12 (myoblasts) and 3T3-L1 (pre-adipocytes) exhibited a differential expression profile of TMEM-143 during the process of differentiation into myotubes and adipocytes respectively. RT-PCR and Western blot analyses showed that potential or commonly used drugs for metabolic disorders modulated the expression level of TMEM-143. In these undifferentiated (differentiated) cell models, Rosiglitazone induced 2.2 (± 0.4)- and 2.6 (± 0.4)-fold increases in TMEM-143 mRNA and protein levels, respectively. Similarly, AICAR and Metformin upregulated TMEM-143 mRNA and protein levels by 2.0 (± 0.35)- and 2.5 (± 0.42)-fold respectively in these cellular models. In myoblasts and myotubes, insulin and BGP-15 increased TMEM-143 protein level by about 2-fold. 2D- and 3D-confocal fluorescence imaging (CFI) of TMEM-143 demonstrated a broad subcellular distribution of this protein with a predominant localization to mitochondria (Manders Overlap Coefficient, MOC: 0.5 ± 0.03 in myotubes vs. 0.3 ± 0.02 in adipocytes) and plasma membrane (MOC: 0.4 ± 0.01 in myotubes vs. 0.3 ± 0.02 in adipocytes). Nevertheless, this mitochondrial protein also exhibited a nuclear localization (MOC: 0.2 ± 0.01 in myotubes vs. 0.33 ± 0.02 in adipocytes) that was further confirmed by overexpressing TMEM-143 coupled to GFP in HEK293 cells, which do not express endogenously this protein. Moreover, 2D- and 3D-CFI uncovered significant cell (i.e. adipocytes, myotubes) size increase and changes in intracellular distribution (trafficking) of TMEM-143, induced by the pharmacological agents that affected its expression. Importantly, TMEM-143 strongly co-localized with glucose transporter type 4 (GLUT-4) (MOC: 0.75 ± 0.02). Silencing TMEM-143 with siRNA technology did not induce cell death and did not affect mitochondria biogenesis or membrane potential. However, TMEM-143 silencing induced a 2-fold decrease in GLUT-4 mRNA and protein levels, and a 2.4-fold decrease in pAKT protein level in insulin-stimulated C2C12 cells; subsequently, a significant reduction (by more than 50%) in glucose uptake was measured in both 3T3-L1 and C2C12 cells. These results indicate that TMEM-143 may play a physiological role in glucose homeostasis and merits further investigation.

Biography

Fouad Azizi has earned his PhD in Biophysical Chemistry at the Center of Molecular Biophysics, National Center for Scientific Research (C.N.R.S.), Orleans, France. He has a research track of over 20 years working in the USA. Currently, he is a Research Scientist, Director of electrophysiology laboratory and Manager of confocal imaging core in the Translational Research Institute, Academic Health System, Hamad Medical Corporation (HMC), Doha, Qatar. His research interests are focused in cancer and metabolic disorders.

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Studying methotrexate therapeutic activity in Chikungunya-related human arthritis

Yosra Bedoui and **Philippe Gasque**
Université de La Réunion, France

Methotrexate (MTX), the first line disease modifying anti-rheumatic drug in rheumatoid arthritis (RA) therapy, has been used successfully to treat patients with rheumatoid-like arthritis post-Chikungunya virus (CHIKV) infection (1). However, mechanisms by which MTX exerts its therapeutic effect are poorly understood. The eicosanoid prostaglandin (PG) E2 is one of the most important mediators of inflammation and contributes to several pathogenic features of arthritis such as pain and bone destruction (2,3). The proinflammatory cytokines IL-1β and TNFα, which play a pivotal role in initiating and driving RA, are known to enhance PGE2 production (4). We herein used a model of primary human synovial fibroblasts (HSF) infected with CHIKV or stimulated by the synthetic molecule polyriboinosinic:polyribocytidylic acid (PIC) to mimic chronic viral infection (5) and assessed the potential pharmacological effects of MTX. By quantitative RT-PCR, we found that PIC but not CHIKV increased the mRNA level of group IVA cytosolic phospholipase A2 (cPLA2α) (6) , a central enzyme in AA-derived eicosanoid production. Similarly, PIC but not CHIKV upregulated mRNA expression of the microsomal prostaglandin E2 synthase 1 (mPGES-1) (7) enzyme involved in PGE2 synthesis. In contrast, we found that PIC and CHIKV enhanced mRNA expression of cyclooxygenase 2 (COX-2) (4) , a major PGE2 biosynthetic enzyme. Moreover, PIC and CHIKV decreased mRNA expression of the PGE2 degrading enzyme 15-hydroxyprostaglandin dehydrogenase (15-PGDH) (8) and this effect was not modulated by MTX. As controls, we found that IL-1β as well as TNFα stimulated mRNA levels of PLA2, COX-2, mPGES-1 and all these effects were inhibited by dexamethasone (DXM). DXM, in contrast, upregulated mRNA expression of the PGE2 degrading enzyme (15-PGDH). These original data argue for a therapeutic activity of MTX independently of PGE2 regulated response and through novel mechanisms which remain to be explored.

Recent Publications:

1. Javelle E, Ribera A, Degasne I, Gaüzère B-A, Marimoutou C, Simon F. Specific Management of Post-Chikungunya Rheumatic Disorders: A Retrospective Study of 159 Cases in Reunion Island from 2006-2012. PLoS Negl Trop Dis. 2015.

2. Fattahi MJ, Mirshafiey A. Prostaglandins and Rheumatoid Arthritis. Arthritis. 2012.

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Biography

Yosra Bedoui obtained her degree of doctor of pharmacy in 2014 at Monastir University, Tunisia. She is currently in her third year of her PhD at the University of La Reunion, France. She is working at the UMR PIMIT. Her thesis is devoted to the evaluation of the immunomodulatory and anti-viral role of methotrexate in the context of chronic arthritis induced by Chikungunya virus infection. Her interests are focused on the study of the physiopathological mechanisms of chronic arthritis induced by Chikungunya virus and the immunomodulatory effects of methotrexate treatment.

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Strategies for the detection, treatment and management of sepsis

Maannashon Prabaharan
King's College London, UK

Sepsis is caused by the host's over-response to an infection, which leads to organ failure. This affects many areas of the body, including the cardiovascular, renal, GI and pulmonary systems. Sepsis has high mortality rates, with survivors being affected by complications, including cognitive decline and increased cardiovascular events.

Current methods for diagnosing sepsis include the use of physical biomarkers such as heart rate (HR), and serological biomarkers such as C-Reactive Protein (CRP) and Procalcitonin (PCT). Clinical trials were found through literature searches using the PubMed and Ovid databases. The cumulative evidence suggests that other serological biomarkers such as presepsin, Pentraxin-3 (PTX3) and micro-RNA have potential for future clinical use. Heart rate variability (HRV) is a newer physical biomarker that has good evidence for diagnosing sepsis patients.

The Surviving Sepsis Campaign has annual updates on guidelines for clinicians in treating sepsis. The latest guidelines have included the empirical use of broad-spectrum antimicrobials to be given immediately, as part of a '1-hour bundle', which does have disadvantages. The growing evidence suggests of a trend in increasing antimicrobial resistance, therefore, new alternatives should be found. This text has evidence for alternative methods, such as the use of antimicrobial stewardship (responsible use of antibiotics) and bacteriophages (viruses which infect and destroy bacteria).

Recent innovations in technology over the past decade have been integrated into clinical practice, and there is great hope for the near future with new research into predictive algorithms and consumer technology in treating patients.

This review aims to summarise the current developments that have occurred in the diagnosis, treatment and management of septic patients. This review also aims to show the reader what future developments hold for improving the quality of sepsis management.

Recent Publications:

1. Koch, A., Nilsen, R., Eriksen, H., Cox, R. and Harthug, S. (2015). Mortality related to hospital-associated infections in a tertiary hospital; repeated cross-sectional studies between 2004-2011. Antimicrobial Resistance and Infection Control, 4(57).

2. Jurač, K., Nabergoj, D. and Podgornik, A. (2018). Bacteriophage production processes. Applied Microbiology and Biotechnology. In press.

3. Wu, X., Yang, J., Yu, L. and Long, D. (2018). Plasma miRNA-223 correlates with risk, inflammatory markers as well as prognosis in sepsis patients. Medicine, 97(27), p.e11352

4. Liu, Y., Yu, M., Shou, S. and Chai, Y. (2017). Sepsis-Induced Cardiomyopathy: Mechanisms and Treatments. Frontiers in Immunology, 8, pp.1-8.

Biography

Maannashon Prabaharan is an intercalating student who has interests in Pharmacology, and its uses in clinical practice. This paper vocalizes his opinions about the current clinical scenario regarding sepsis (Levy et al. 2018), and potential future changes that could be implemented in all aspects of clinical care.

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Are oral arginine supplements effective in attenuating hypertension?

Sarah Martin
University of Saskatchewan, Canada

Oral L-arginine supplements have been tried to lower blood pressure with conflicting results, with one of the factors affecting the outcome is whether the subject is healthy or has hypertension. Arginine is a substrate for at least four enzymes including nitric oxide synthase and arginase, but the impact of oral supplements on its different metabolic pathways is not clear. We examined the effect of L-arginine and D-arginine, at two different doses of 500 mg/kg/d (500) or 1000 mg/kg/d (1000) in drinking water administered for 4, 12 or 16 weeks to separate groups of 9 week old male Sprague-Dawley (SD) rats or 5 week old male Zucker Diabetic Fatty (ZDF) rats. We report the effects on the endothelial nitric oxide synthase (eNOS)/nitric oxide (NO) and the arginase/urea metabolic pathways. L-arginine (500) increased eNOS expression in the aorta and the kidney and plasma nitrite levels, but did not affect the mean arterial pressure (MAP) in the SD rats. L-arginine (500) also decreased arginase II in the ileum. D-arginine also unexpectedly increased eNOS expression in the kidney and decreased arginase in the liver and the ileum. Arginine (1000) also did not affect the MAP in the SD rats. On the other hand, L-arginine (1000) attenuated the increase in MAP in the ZDF rats without affecting eNOS expression or nitrite levels. However, it did not attenuate the increased arginase expression or urea levels in the ZDF rats as compared to Zucker lean rats. In conclusion, two different doses and durations of oral arginine treatment did not affect the MAP in Sprague-Dawley rats, but attenuated it in the ZDF rats. Thus, the blood pressure lowering effect of oral L-arginine should not be taken for granted and their effects on the arginase and other metabolic pathways (results not shown) should be considered to avoid adverse effects.

Biography

Sarah Martin has completed her BSc in Physiology and Pharmacology at the University of Saskatchewan. Her project aimed to study the effects of oral arginine supplements on male Sprague-Dawley and Zucker Diabetic Fatty rats. She is pursuing her MSc and is excited to start the Post Degree Nursing program next spring with the final goal of becoming a nurse practitioner.

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Salt-sensitivity-contributing factor for the development of metabolic syndrome

Irina Andronikashvili, Simonia G and **Pantsulaia N**
Tbilisi State Medical University, Georgia

Statement of the Problem: It is known that and salt loading not only increases blood pressure (BP) but causes cardiovascular damage in animals and humans. Recent clinical studies have demonstrated that metabolic syndrome (MS) increases the salt sensitivity of BP. There is also known that salt sensitivity increases with age.

Purpose: The purpose of study was to assess an association between salt-sensitive hypertension and metabolic syndrome in the elderly.

Materials & Methods: The study enrolled a total of 158 ethnically Georgian patients of stage I essential hypertension (JNC VIII). 72 of them where middle-aged (38-62 year old, 42 females and 30 males) and 86 where elderly (65-75 years old, 47 females and 39 males). Anthropometry, blood pressure monitoring, and 24 hr urinary sodium excretion were performed. All subjects were tested for salt-sensitivity. MS was classified as recommended by the International Diabetes Federation-IDF9.

Findings: Our results have shown that all subjects consumed high amount of sodium chloride. Salt sensitivity was detected in 41 (57%) of hypertensive middle-aged (24 i.e. 58.5% of them were females) and in 62 (72%) of hypertensive elderly patients (44 i.e., 70.9% females). MS was detected in 18 (25%) of hypertensive middle-aged (11 (61%), of them were females and 14 (77.7%) were salt-sensitive) and 46 (53.4%) of hypertensive elderly patients (34 (73.9%) of them were females and 39 (84.7%) were salt-sensitive). A high prevalence of salt-sensitive hypertension was revealed in women and positive correlation of salt-sensitivity with age was found (r=0.64, p<0.05).

Conclusions: High incidence of salt-sensitivity and prevalence of salt-sensitive hypertension associated with high sodium intake has been detected in Georgian hypertensive subjects. High sodium consumption in salt-sensitive hypertensive patients of Georgian nationality is closely linked with higher incidence of MS. There is a high prevalence of metabolic syndrome in the elderly, especially in women.

Recent Publications:

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2. Masson, S., Caironi, P., Fanizza, C., Thomae, R., Bernasconi, R., Noto, A., Oggioni, R., Pasetti, G., Romero, M., Tognoni, G., Latini, R. and Gattinoni, L. (2015). Erratum to: Circulating presepsin (soluble CD14 subtype) as a marker of host response in patients with severe sepsis or septic shock: data from the multicenter, randomized ALBIOS trial. Intensive Care Medicine, 41(9), pp.12-20.

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4. Komorowski, M., Celi, L., Badawi, O., Gordon, A., and Faisal, A. (2018). The Artificial Intelligence Clinician learns optimal treatment strategies for sepsis in intensive care. Nature Medicine 24: 1716-1720.

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Biography

Irina Andronikashvili is an Associate Professor in the Department of Internal Medicine, Tbilisi State Medical University. Her scientific interest is etiology and pathophysiology of hypertension, particularlymechanism of development salt sensitivity and salt sensitive essential hypertension, elaboration of adequate methods of treatment and prevention. She is a Member of Georgian and Europian Societies of Cardiology.

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Toxicity test of emodin in ICR mice

Sang Youn Hwang*, Jung Woo Im*, Ki Jeong Jeon*, Seon-Mi Lee*, Cheol Won Choi*, Ja Woong Shim*and **Kyu Heo***
Pusan National University (PNU)**,** South Korea

Background/Aims: The application of radiotherapy of hepatocellular carcinoma (HCC) is limited due to radioresistance in tumor and radiotoxicity in nontumorous liver. Therefore, study for radioresistance mechanism and improvement of killing effect of irradiation by therapeutic insult such as radiosensitizer etc. Emodin (1,3,8-trihydroxy-6-methylanthraquinone), a family of plant derived polyphenolhas been proven to have anticancer properities. We performed *in vivo* study using BALBc/nude mice to prove the effect of emodin as radiosensitizer last year. Therefore we performed toxicity study of emodin in the view of new drug development.

Methods: ICR mice was used in this study. Mice were treated with five different manners; none (control), 5mg/kg, 50mg/kg, 100mg/kg, 250mg/kg of emodin. Emodin was administered only one time and we investigated body weight, activity, food intake of mice and harvested them within one month. Then we measured organ weight & gross morphology

Results: No systemic toxicity of emodin was found in ICR mice (Figure 1, 2), but hematologic toxicity as subtle anemia and thrombocytopenia was suspcious in 250mg/kg injected group.

Conclusions: Therefore, our findings may provide that emodin can be developed as new tolerable radiosensitizer in HCC and may aid in the design of new therapeutic strategies for the radioresistant HCC.

Recent Publications:

1.   Hwang SY, Cho M et al. Effectiveness and complications of combination therapy with interferon alpha and ribavirin in patients with chronic hepatitis C. Korean J Gastroenterol. 2007 Mar;49(3):166-72.

2.   Hwang SY, Roh YH et al. Extramedullary plasmacytoma of the pancreas diagnosed using endoscopic ultrasonography-guided fine needle aspiration. Clin Endosc. 2014 Jan;47(1):115-8.

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9.   Lee JH, Hwang SY, Kim YJ et al. Long-term Prognosis of Combined Hepatocellular and Cholangiocarcinoma After Curative Resection Comparison With Hepatocellular Carcinoma and Cholangiocarcinoma. J Clin Gastroenterol 2011 Jan;45(1):69-75.

Biography

Education: 2001 graduated from Pusan National University (PNU), School of Medicine, Korea
2006 Master of Science in Medicine in PNU, School of Medicine, Korea
2015 Doctor of Philosophy in Medicine in PNU, School of Medicine, Korea

Postgraduate training and fellowship appointments:
2001-2002 Internship program, Pusan National University Hospital, Pusan, Korea
2002-2006 Residency, Internal Medicine, Pusan National University Hospital, Pusan, Korea
2008-2010 Clinical fellowship, Gastroenterology, Seoul National University Hospital, Seoul, Korea

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Methodology of math-physical medicine

Gerald C. Hsu
eclaireMD Foundation, USA

Math-physical medicine approach (MPM) utilizes mathematics, physics, engineering models, and computer science in medical research. Initially, the author spent four years of self-studying six chronic diseases and food nutrition to gain in-depth medical domain knowledge. During 2014, he defined metabolism as a nonlinear, dynamic, and organic mathematical system having 10 categories with ~500 elements. He then applied topology concept with partial differential equation and nonlinear algebra to construct a metabolism equation. He further defined and calculated two variables, metabolism index and general health status unit. During the past 8.5 years, he has collected and processed 1.5 million data. Since 2015, he developed prediction models, i.e. equations, for both postprandial plasma glucose (PPG) and fasting plasma glucose (FPG). He identified 19 influential factors for PPG and five factors for FPG. He developed the PPG model using optical physics and signal processing. Furthermore, by using both wave and energy theories, he extended his research into the risk probability of heart attack or stroke. In this risk assessment, he applied structural mechanics concepts, including elasticity, dynamic plastic, and fracture mechanics, to simulate artery rupture and applied fluid dynamics concepts to simulate artery blockage. He further decomposed 12,000 glucose waveforms with 21,000 data and then re-integrated them into three distinctive PPG waveform types which revealed different personality traits and psychological behaviors of type 2 diabetes patients. Furthermore, he also applied Fourier Transform to conduct frequency domain analyses to discover some hidden characteristics of glucose waves. He then developed an AI Glucometer tool for patients to predict their weight, FPG, PPG, and A1C. It uses various computer science tools, including big data analytics, machine learning, and artificial intelligence to achieve very high accuracy (95% to 99%).

Recent Publications:

1. Hsu, Gerald C. (2018). Using Math-Physical Medicine to Control T2D via Metabolism Monitoring and Glucose Predictions. Journal of Endocrinology and Diabetes, 1(1), 1-6.

2. Hsu, Gerald C. (2018). Using Signal Processing Techniques to Predict PPG for T2D. International Journal of Diabetes & Metabolic Disorders, 3(2),1-3.

3. Hsu, Gerald C. (2018). Using Math-Physical Medicine and Artificial Intelligence Technology to Manage Lifestyle and Control Metabolic Conditions of T2D. International Journal of Diabetes & Its Complications, 2(3),1-7.

4. Hsu, Gerald C. (2018). Using Math-Physical Medicine to Study the Risk Probability of having a Heart Attack or Stroke Based on 3 Approaches, Medical Conditions, Lifestyle Management Details, and Metabolic Index. EC Cardiology, 5(12), 1-9.

Biography

The author received an honorable PhD in mathematics and majored in engineering at MIT. He attended different universities over 17 years and studied seven academic disciplines. He has spent 20,000 hours in T2D research. First, he studied six metabolic diseases and food nutrition during 2010-2013, then conducted research during 2014-2018. His approach is "math-physics and quantitative medicine" based on mathematics, physics, engineering modeling, signal processing, computer science, big data analytics, statistics, machine learning, and AI. His main focus is on preventive medicine using prediction tools. He believes that the better the prediction, the more control you have. (Up to 100 words)

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MicroRNA 103 inhibitor as a potential promising therapeutic target for myocardial infarction

Mai A. Zaafan, Amr M. Abdelhamid, Ayman Selim, Amr Mohamed Alaa, Bana Ammar, Shahd Yehia, Al Hasnaa Abdel Tawwab, Asmaa Esmail, Heba Abdelhakim and **Yara Hamdy**
October University for Modern Sciences and Arts (MSA), Egypt

Myocardial infarction (MI) is myocardial cell death due to severe and prolonged ischemia produced from atherosclerosis-related coronary artery disease. MI triggers a cascade of events and reparative phases end with myocardial cell necrosis. MicroRNA (miR) is non-coding single stranded RNA that regulates protein expression. miR-103 is used to regulate expression of Fas-associated death domain (FADD) which decreases necroptosis of ischemic myocardium. The study aims to investigate the modulatory effect of up-regulating mRNAs translation processes of myocardial infarction induced with Isoprenaline HCL 100 mg/kg (ISO) by injecting miR-103 inhibitor. Eighteen mice (15-25 gm) were allocated into three groups; Group A (control) received normal saline, Group B received ISO and Group C received ISO and miR-103 inhibitor. Mice were sacrificed by cervical dislocation under urethane anesthesia. Blood and hearts samples were collected for biochemical analysis of miR103, FADD, receptor interacting protein kinase (RIPK), nuclear factor-kB (NF-kB), tumor necrosis factor-α (TNF-α), interleukine-6 (IL-6),Troponin-I and creatine kinase-MB (CK-MB). In addition, hearts were used for histopathological examination. Results showed that administration of miR-103 antagomir leads to increase in FADD protein levels in group C compared to A and B. While miR-103, RIPK, NF-kB, TNF-α and IL-6 showed high levels of expression in group B that is attenuated in group C. Troponin-I and CK-MB also supported the previous results. Histopathological test showed normal histological structure in groups A and C while focal degeneration in myocardium in B. Accordingly, these results indicate a promising suppression of MI manifestations upon inhibition of miR-103.

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Right ventricular outflow tract reconstruction

Balram Airan
Mahatma Gandhi Hospital, India

Right ventricular outflow tract (RVOT) reconstruction is an integral component of many pediatric cardiac surgical procedures. Till date the ideal method of performing this remains elusive. This presentation will focus on the various substitutes available for RVOT reconstruction, their merits and demerits and intermediate and long term results. Between January 1998 and December 2018, 365 patients underwent right ventricular outflow tract reconstruction for a variety of indications: Ventricular septal defect with pulmonary atresia (n=231), Tetralogy of Fallot (n=65) and Tetralogy of Fallot with absent pulmonary valve syndrome (n=69). This excludes patients with truncus arteriosus in whom valved conduits are the predominant option. The method of RVOT reconstruction was pulmonary homograft (n=137), aortic homograft (n=62), direct anastomosis of the main pulmonary artery to the RVOT (n=32) in patients with ventricular septal defect with pulmonary atresia. For the other two indications, the methods adopted were monocusp pulmonary valve reconstruction with autologous pericardium (n=59), bicuspid pulmonary valve using PTFE membrane (n=49) and RVOT reconstruction using a homograft monocusp (n=26). In patients with homograft implantation there were no significant early gradients and the valves were competent in all. In patients with pericardial monocusps there was mild insufficiency in immediate follow-up, moderate at three years of follow-up in 16 and severe in 35 patients at 6 to 13 years of follow-up. In patients with PTFE valve reconstruction that was adopted recently, freedom from significant stenosis or regurgitation was 87% at a median follow-up four years. In patients with homograft monocusp preconstruction, freedom from the latter was 74% at a median follow-up of six years. There were 35 re-operations for change of the conduit after a median follow-up ranging 9 to 13 years. We conclude that the methods of RVOT reconstruction need to be tailored to the individual patient anatomy and using a variety of these techniques, satisfactory results may be obtained.

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Waist circumference measures predict the cardiovascular risk parameter

Niraj Khatri Sapkota
Chitwan Medical College, Nepal

Background: Systolic and Diastolic blood pressure are two variables of Blood pressure that can be precisely measured if right precaution be taken and hence provides an attention to understand the cardiovascular risk parameters such as atheresclerosis,Ischaemic Heart disease, Strokes that leads to premature death. Waist circumference is considered to be one of the important measurements that indicate deposition of fat bulk around waist region that is directly associated with insulin resistant, Hypertension other Cardiac-metabolic risk.

Aims: Hence, this study aims to find waist circumference (WC) measurement strongly predicts hypertension one of the cardiovascular risk.

Methods: A community based cross sectional study was conducted by incorporating total of substantial number (more than 100) of subjects in the data who were male only older than 25 years, non smokers, non alcoholic, didn't have history of taking any type of medication, non vegetarian with normal physical activity and were residents in the urban and rural areas throughout, were included in the present study. Waist circumference referenced to umbilicus measured by non tensile and non flexible measuring tape and at the mean time height and weight were also recorded by standard device in order to calculate BMI and blood pressure was measured by Aneroid sphygmomanometer of the respective subject subsequently data analysis was made by using SPSS to compare the BMI and Waist circumference relationship with blood Pressure independently to identify their relationship with hypertension.

Results: Keeping few exceptional aside, Both BMI and Waist Circumference exhibited positive association with blood pressure, while the waist circumference was more strongly associated with hiking of blood pressure and also BMI is not always the relating parametric tool to metabolic disease as was conventionally considered.

Conclusion: The result and analytical data showed that (P<0.05) there is significant strong correlation of blood pressure with waist circumference comparatively more than BMI thus WC alone can significantly predict the co-morbidity therefore this study approach to suggest and hints to follow as a routine task for measuring Waist circumference while taking inference for diagnosing hypertension risk at least in male.

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Evaluation of the effect of HFRT on the anthropometric obesity parameters in patients of chronic heart failure-a retrospective analysis

Gurudatta Amin, Rohit Sane and **Rahul Mandole**
Madhavbaug Cardiac Care Clinics and Hospital, India

Statement of the Problem: Chronic heart failure (CHF) is a common cause of mortality and morbidity. Obesity influences the CHF development and prognosis. This study was conducted to assess effect of Heart failure reversal therapy (HFRT), a combination of panchakarma and allied therapies, on anthropometric parameters in CHF patients.

Methodology & Theoretical Orientation: This retrospective study was conducted on data of patients who visited Madhavbaug clinics in Maharashtra, India between July-December 2018. Selection was based upon the availability of complete baseline (day 1 of HFRT) and follow-up data (day 30 of HFRT) of CHF patients who were admitted for minimum five days for HFRT.

Findings: Out of 147 patients, 74.15% were males with mean age 59.15+10.28 years. There was statistically significant decrease ($p<0.05$) in both mean BMI and abdominal girth at day 30 of HFRT. 42 of 147 patients (28.57%) had hypertension (HTN) with CHF, 22 patients (14.97%) had diabetes mellitus (DM) and 61 patients (41.49%) had both HTN and DM. In all these sub-groups, mean BMI and abdominal girth was significantly decreased ($p<0.05$) at day 30. Strong positive correlation was found between BMI and abdominal girth on day 1 ($R=0.9$, $P<0.05$) and day 30 ($R=0.83$, $P<0.05$) by Pearson's correlation. Similar correlation was found between the two parameters in subsets of CHF patients having HTN or DM or both DM and HTN ($p<0.05$).

Conclusion & Significance: HFRT decreased BMI and abdominal circumference significantly in CHF patients, irrespective of the presence of HTN or DM. Both the anthropometric parameters correlated strongly in all co-morbidity subsets of CHF patients.

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Omental adipose removal decreases high blood pressure in hypertensive patients independent of body mass index

Li Jiang
The First Affiliated Hospital of Nanjing Medical Universtiy, China

Omental adipose removal decreases high blood pressure in hypertensive patients independent of body mass index: It is a multicenter, prospective cohort clinical study. 133 patients with gastric or gynecological cancer were divided into three groups: non-hypertensive and omentum removed (NH&OR), hypertensive and omentum removed (H&OR), and hypertensive and omentum present (H&OP). The patients were followed up in sitting blood pressure (SBP), changes in related body mass index and metabolic indices. The time points of the two follow-up visits were one month±7 days after the operation before the start of chemotherapy and the endpoint of 8±1 month. H&OR group showed significant reductions in SSBP and SDBP at 1-m (-16.94/-10.50 mmHg, both P<0.001) and 8-m endpoint (-16.00/-5.50 mmHg, P<0.001 and P=0.004). Little reductions were observed with BMI of patients in three groups (H&OR group: 24.60 kg/m2 to 23.57 kg/m2, NH&OR group: 23.45 kg/m2 to 23.25 kg/m2, H&OP group: 25.74 kg/m2 to 25.24 kg/m2, all P>0.05). No correlation was found between baseline BMI and 8-m change of SSBP and SDBP in H&OR groups. In both groups, triglyceride levels were significantly increased at 1-m after surgery (NH&OR 0.32 mmol/L, P=0.006; H&OR 0.40 mmol/L, P=0.010). Resection of omental adipose tissue represents an impact for reducing SSBP and SDBP at eight months in hypertensive patients, even in the non-obese hypertensive population.

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Prenatal MR imaging of congenital heart diseases and associated abnormalities

Tamara Feygin

Perelman Medical School at University of Pennsylvania, USA

The Children's Hospital of Philadelphia, USA

A variety of congenital heart diseases (CHD) may be diagnosed prenatally. Traditionally, the fetal heart was primarily assessed by fetal echography. However, fetal MRI has been proven as a helpful imaging tool in detection of cardio-vascular anomalies in utero. Numerous conditions, including aorta coarctation, hypoplastic left heart syndrome, tetralogy of Fallout, cardiac aneurysm, pericardial/cardiac tumors may be demonstrated on MR imaging. In addition, presence of other coexisting anomalies outside of the cardio-vascular system may be discovered. Some cardio-vascular anomalies may be more than an isolated problem and could be a part of an underlying systemic/genetic condition. Even in the absence of genetic abnormalities, infants with CHD are at increased risk of brain lesions (15-45%) or neurodevelopmental delay. The demonstration of a full spectrum of fetal anomalies provides extremely valuable information to clinicians and parents-to be. Fetal MR may be a feasible addition for timely and precise diagnosis of cardiac disease and associated anomalies. Prenatal imaging therefore helps to predict pregnancy outcome, and prepares couples for the birth of a child with an abnormality. The obtained information may also assist in thorough screening of fetal patients for eligibility for fetal treatment. It may help to prognosticate to some degree important issues of patient's developmental outcome and quality of life.

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Evaluation of the liver and renal function in patients of chronic heart failure based on the body mass index: A retrospective study

Rohit Sane and **Rahul Mandole**
Madhavbaug Cardiac Care Clinics and Hospital, India

Statement of the Problem: Chronic Heart Failure (CHF) is known to affect hepatic and renal function adversely, but relevant Indian data is scarce. This study aimed to assess liver function tests (LFTs) and renal function tests (RFTs) of CHF patients and their relation to BMI status.

Methodology & Theoretical Orientation: The retrospective study considered data of patients who consulted Madhavbaug clinics in Maharashtra, India between July-December 2018. Baseline LFTs and RFTs were analyzed wholly and based on BMI status, viz. normal-BMI, overweight and obese.

Findings: Of 147 patients, majority were males (74.15%) with mean age of 59.15+10.28 years. Based on BMI, three patient sub-groups were made: (56 with normal BMI, 60 were overweight and 30 were obese). Mean SGOT and SGPT were lower in obese group, but this was insignificant (p>0.05). Overall ALP was increased in all CHF patients but was comparable in all three sub-groups (p>0.05). Mean direct bilirubin were above-normal in all sub-groups, but mean total and indirect bilirubin were normal. Mean A/G ratio was normal in all sub-groups. Total serum protein was below normal in all sub-groups, being lowest in overweight group, but these findings were insignificant (p>0.05). RFTs, viz. BUN and serum creatinine, were normal and comparable in all sub-groups (p>0.05).

Conclusion & Significance: Mild elevation in direct bilirubin and notable ALP elevations were seen in CHF patients but their RFTs were normal. Mean LFTs and RFTs were comparable in patients with normal BMI, overweight or obese patients, indicating lack of association between BMI and hepatic or renal function.

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Menopausal status is not associated with hypertension in post-menopausal women

Namrata Kafle
Padma Nursing College, India

Introduction: Menopause is a inevitable physiological phenomenon in which cardiovascular risk factor (CRF) factors association is reported, but age at menopause (AAM) varies considerably and could affect the risk among post-menopausal women. The aim of the study was to clarify whether AAM is associated with hypertension, independent of chronological age, lifestyle and hormone replacement therapy (HRT), in Nepalese women.

Methods: A cross-sectional study was conducted using the baseline survey in 60 female among them 30 were post menopausal aged (45-55) study group and 30 pre menopausal aged (35-44) women considered to be control group. The prevalence of hypertension in AAM groups were compared by using statistical analysis. Daily lifestyle such as smoking, alcohol consumption, and doing brisk physical activity and women under oral Contraceptive pill were not included in this study.

Results: The estimated risk (odds ratio: OR) was significantly higher in post-menopausal women and linearly elevated according to the AAM groups, and the late AAM group was more likely to have hypertension however, after adjustment for age, BMI (kg/m(2)), HRT and lifestyle, AAM showed no significant association with cardiovascular variables such as systolic, diastolic and pulse pressure when just considered the menopausal status, therefore AAM group is not associated with increased risk of hypertension compared with premenopausal control group attributed just because of menopausal status.

Conclusions: There is no any association of hypertension relevant to menopausal status confounding other parameters such as age, BMI, life style and HRT therapy in the post-menopausal women.

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Unusual scenario in patient with primary PCI

Mohamed Elraghy
MD Alazhar University, Egypt

85 years old male patient knows case of DM presented with chest pain since one day. ECG and cardiac enzymes were ordered which showed a positive result, therefore he was admitted to CCU as NSTEMI for primary PCI. Patient shifted to Cath lab. CAG through the right Radial was done revealed proximal tight lesion 90%followed by long 70%lesion in LAD and total occlusion in LCX with large thrombus burden . Successful PCI to LCX,OM2 And LAD were done with type 1 small perforation which sealed during procedure with no effusion or tamponade . Patient shifted to CCU bed then he developed sever chest pain, hypotension and bradycardia , ECG at this time showed ST elevation in high lateral leads with ST DEPRESSION in the inferior leads, thus he shifted back immediately to Cath lab. At this time pt. Arrested and active resuscitatation was done. Coronary angiography was done by transfemoral cannulation which showed NO flow was found in both LAD AND LCX. Wiring of both arteries by two PT2 wires, multiple balloon inflations to the Stents and intracoronary injection of heparinized saline, Aggrastate and Adrenalin were given.

Finally, coronary were opened and the LV regained contractility and BP was built up with no sings of tamponade. Pt. Discharged to home.

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Current trends and procedural outcomes in the era of rotational atherectomy expansion in Poland between 2014-2017 (based on the nationwide ORPKI registry)

Rafał Januszek, Zbigniew Siudak, Krzysztof Reczuch, Stefan Dobrzycki, Maciej Lesiak, Jacek Legutko, Paweł Kleczyński, Łukasz Rzeszutko, Dariusz Dudek and **Stanisław Bartuś**
University of Physical Rehabilitation, Poland

Introduction: The availability of rotational atherectomy (RA) has increased recently in Poland, which was followed by an increase in the rate of RA procedures and catheterization laboratories (CathLabs) performing RA.

Aim: To assess current trends regarding the rapid increase in the number of RA procedures and CathLabs performing RA.

Material and Methods: We analyzed patients treated with percutaneous coronary intervention (PCI) in the years from 2014 to 2017 available in the nationwide ORPKI dataset. From the overall 431,467 patients treated with PCI, we extracted 1,873 treated with RA. We analyzed the relationship between frequency of RA usage, its distribution between low and high volume centers and procedural outcomes with insight into procedural related complications and procedural effectiveness expressed as target artery patency after PCI.

Results: We observed an above threefold increase in the number of RA procedures from 181 in 2014 (0.19%) to 698 in 2017 (0.61%) and an above two fold increase in the number of CathLabs performing RA from 25 (15.5%) in 2014 to 55 (34.1%) in 2017. Besides the fact that patient characteristics have changed in most recent years, the rate of procedural success expressed as procedure related complications has remained stable in the previous following three years and waived around 3%, while the procedural effectiveness expressed as patent target coronary artery after PCI was stable and over 98% in all of the analyzed years.

Conclusions: Apart from the increase the number of RA procedures and CathLabs performing RA, its procedural effectiveness remains at a stable level.

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Prevention of atherosclerosis through dietary interventions

Mohammed Moghadasian

University of Manitoba and St. Boniface Hospital Research Centre, Canada

Introduction: Atherosclerotic cardiovascular disease still remains as the top reasons for morbidity and mortality worldwide. It was reported that cardiovascular disease was the cause of 13.7 million deaths in 2013; this number of mortality is expected to reach 24 million by 2030. On average, every 40 seconds one person dies of cardiovascular disease in USA. Many epidemiological studies highlighted a strong positive association between diets and cardiovascular morbidity and mortality. We have reported that plant phytosterols significantly prevents atherogenesis in apo E-KO mice. Human studies reported cholesterol-lowering efficacy for phytosterols. Therefore, it is recommended that 2 grams of phytosterols may reduce cardiovascular risk.

Objective: to present anti-atherogenic effects of dietary agents.

Methodology: LDL-r-KO mice were fed with a diet enriched with wild rice at 60% (w/w), or Kgengwe seed powder at 10% (w/w) for 20 weeks. A control group was fed with normal mouse chow. At baseline and during the experimental course body weight, food intake, and plasma lipids were regularly measured. At the end of the study the hearts were examined by light microscopic techniques to evaluate the development of atherosclerotic lesions in the aortic roots. The aortae were used for examination of adhesion of monocytes to the endothelium. Final plasma samples were used to estimate the levels of several common cyotokines.

Findings: Treatment with wild rice or Kgengwe seed powder was associated with reductions in plasma cholesterol levels. As compared to the control group, the treated groups had smaller atherosclerotic lesions in the aortic roots. This anti-atherogenic effect of the dietary agents was associated with beneficial effects on inflammatory mechanisms as assessed by monocyte adhesion to the endothelium or beneficial alterations in plasma cytokine profile.

Conclusions: Both wild rice and Kgengwe seed powder may prevent atherogenesis through reductions in plasma cholesterol levels and beneficial alteration in inflammatory biomarkers.

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Evaluation of the effect of minocycline on resident intruder model of acute anxiety & Post Traumatic Stress Disorder (PTSD) in golden Syrian hamsters

Shirish S Joshi and **Panini S Patankar**
GSMC & KEMH, India

Statement of the Problem: Acute anxiety & Post Traumatic Stress Disorder are one of the most under-rated debilitating psychiatric conditions with world-wide prevalence approximated to 41%. PTSD generally occurs after severe psychological stress as observed in war veterans and people who have experienced severe natural or man-made disasters resulting in features like flashbacks, insomnia, nightmares and accompanied by co-morbidities like depression. Current line of treatment consists of short acting benzodiazepines for acute treatment along with long term treatment with selective serotonin reuptake inhibitors (SSRI) like fluoxetine. However, current treatment has variable efficacy & even aggregates certain symptoms like nightmares by increasing REM sleep. Thus, it is essential to either develop a new drug or check for off label application of currently used drugs.

Methodology & Theoretical Orientation: Resident intrusion model for induction of acute anxiety was used as this model has greater face validity and construct validity. Hamsters were used as they are solitary and territorial animals. All male hamsters were individually housed in ideal conditions with larger hamsters weighing >130 gm and smaller between 80-120gm. Smaller hamsters were exposed in the cage of larger dominant ones and changes in behavior of smaller submissive hamster were noted during five-minute pairing period. After resident intrusion, drugs were given to the hamster intraperitoneally. Normal saline was used as disease control, lorazepam (0.5 mg/kg) as positive control and minocycline (45 mg/kg) as test drug. The efficacy was checked by measuring serum cortisol levels within 24 hours of collection along with behavioral tests using open field and elevated plus maze (EPM).

Results & Conclusion: Cortisol levels showed significant difference between disease control group and positive control group. Also, there was significant difference between disease control group and minocycline group. However, no significant difference was found in cortisol levels between positive control group and minocycline group. The results for behavioral tests were on similar lines with time spent in open arm in EMP being significantly more in positive control & minocycline group compared to disease control without statistical significance between positive control group and minocycline group. Results in open field test were similar. Thus, efficacy of minocycline is similar to lorazepam.

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Effects of pre- and postprandial aspirin on gastric bleeding based on clinical data and *in vitro* study

Guangjun Fan, Xueting Wang and Kang Jiang
The Second Hospital of Dalian Medical University, China

Statement of the Problem: Aspirin is a common anti-inflammatory agent. Clinical pharmacists have found an inconsistency in the timing of taking the medicine mentioned on the instructions of different brands of aspirin(100mg). However, there are no relevant research on the medication time of aspirin has been previously studied. This study aimed to investigate the effect of pre- or postprandial aspirin on GI bleeding, guide clinical medication, reduce the risk of gastric hemorrhage and protect patients' reasonable rights.

Methodology & Theoretical Orientation: The rational administration time of enteric-coated aspirin tablets was explored through retrospective analysis of cases and *in vitro* drug dissolution tests. Data from 100 patients taking enteric-coated aspirin tablets in the Second Hospital of Dalian Medical University were retrospectively analyzed. They included baseline information, medical history, brand of aspirin, time of taking medicine (fasting or postprandial), gastric bleeding situation, and so on. Four groups were divided in the study. The Student t test and c2 test were used for comparison among groups. The *in vitro* study based on high-performance liquid chromatography and basket method conducted in different pH media (1.0–6.8) simulated changes in gastric pH after a meal, with a basket rotation speed of 100 rpm. Findings: In this clinical cases, GI bleeding caused by aspirin had no relevance with the medication time (before or after meals; $P < 0.05$). The *in vitro* dissolution experiment results suggested that no obvious release of enteric-coated aspirin tablets occurred at pH 1.0-5.0, when it increased to 6.8, about 80% of the drug was released. Conclusion & Significance: This study indicated that when the pH of stomach was below 5, aspirin was not released in advance. Patients with an upset stomach should be advised to take aspirin before meals to prevent aspirin release in advance and reduce the damage to the stomach.

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Aqueous extract of *Argania spinosa L.* fruits improves diabetes in streptozotocin-induced diabetic rats

Morad Hebi[1], Farid Khallouki[1], Rémy Burcelin[2] and **Mohamed Eddouks[1]***
[1]Moulay Ismail University, Morocco
[2]Rangueil Hospital, France

Introduction: The argan tree (*Argania spinosa* L.) is an endemic species from south-western Morocco. Argan-based preparations have been widely used in Moroccan traditional medicine for their biological properties including diabetes especially argan oil. However, beside the effect of the oil a precise analysis of the impact of the pulp of A. spinosa fruit on glucose and lipid control and metabolism has never been evaluated.

Objective: The purpose of this study was to investigate the effect of a single dose and daily oral administration for seven days of aqueous extract of pulp of *A. spinosa* fruit (A.E.P.F.A.S) in normal and streptozotocin (STZ)-induced diabetic rats on blood glucose levels and plasma lipid profile.

Results: Single oral administration of A.E.P.F.A.S reduced blood glucose levels 6 hours after administration in STZ diabetic rats. Furthermore, the glycemic control was sustained for seven days during a chronic daily treatment. The pretreatment with an A.E.P.F.A.S of diabetic rats significantly improves the glycemic control following an oral glucose challenge when compared to the saline treated diabetic rats. Eventually, plasma cholesterol was reduced by the treatment while antioxidant effects of A.E.P.F.A.S in severe diabetic state were observed.

Conclusion: This study demonstrates that a treatment with A.E.P.F.A.S significantly improves plasma glucose and cholesterol levels. In front of these promising results further investigations are needed to elucidate the mechanism(s) of action of A.E.P.F.A.S and the active constituent(s) of the extract.

Keywords: *Argania spinosa*; Antioxidant activity; Streptozotocin; Lipid profile; phytochemical screening.

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The effect of Olive leaf extract on the attenuation of ischemic brain damage in Rat

Abdolhamid Parsa, Mohammad Kamlinejad and **Mohammad Babaeian***
Shahid Beheshti University of Medical Sciences, Iran

Introduction: This study was designed to investigate whether the olive leaf extract (OLE) are effective in a thromboembolic model of stroke in rat.

Methods: Olive leaf aqueous extract 500 mg/kg for 7 days were administered prior to stroke induction. Behavioral and neurological scores, brain edema, infarct volume, the level of tumor necrosis factor-alpha (TNF-α), malondialdehyde (MDA), catalase activity (CAT), and superoxide dismutase (SOD) changes were determined in the ipsilateral cortex 24 hr. after embolization.

Results: Treated animals with (OLE) significantly showed brain infarction in a smaller size and less ipsilateral hemisphere edema in comparison with the control group. Moreover, SOD and CAT values were significantly decreased and the level of MDA was increased after stroke induction. The extract administration also improved changes in biochemical markers of oxidative stress and TNF-α induced by stroke. The group receiving (OLE) indicated less neurological and behavioral abnormalities in comparison to the control group.

Our findings proved the effectiveness of olive leaf aqueous extract in thromboembolic model of stroke which is most probably due to the olive leaf extract antioxidant properties.

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Pharmacological evaluation of hepatoprotective activity by quercetin, rutin, silibinin nanoformulation

Varadhan.R, C.Senthil Kumar and **S.Mohan**
Karpagam College of Pharmacy, India

Medicinal plants are significant sources of hepatoprotective drugs and more widely used than allopathic drugs as hepatoprotective because these are usually inexpensive, better cultural acceptability, improved compatibility with the human body and minimal side effects. One of the important applications of nanoparticles in medicine includes effective drug delivery system. To evaluate the hepatoprotective activity of prepared Plain (P NPs), Quercetin (Qu NPs), Rutin (Ru NPs), Silibinin (Si NPs), Quercetin-Rutin (Qu-Ru NPs) and Quercetin-Silibinin (Qu-Si NPs) polymeric nanoparticles in comparison with pure corresponding phytochemicals using paracetamol, CCl4 and ethanol induced animal model. Prepared dual loaded Quercetin-Rutin (Qu-Ru NPs), Quercetin-Silibinin (Qu-Si NPs) polymeric nanoformulation displayed enhanced hepato protective activity against Ethanol intoxicated in comparison with pure compound and single loaded polymeric nanoformulation.

Introduction: The one of the important clinical application of flavonoids like Silibinin, quercetin and rutin are widely used as a hepatoprotective, anti-inflammatory and antifibrotics agent.Nanotechnology is the manipulation of matter on atomic, molecular and supra molecular scale. National Nanotechnology Initiative defined nanotechnology as manipulation of matter with at least one dimension sized from 1 to 100 nanometers.Hence the aim of the study is to prepare single loaded flavono polymeric nanoparticles and compare its hepatoprotective efficacy with pure drug.

Experimental Methods: Hepatoprotective effect of prepared Quercetin (Qu NPs), Rutin (Ru NPs), Silibinin (Si NPs), Quercetin-Rutin (Qu-Ru NPs), Quercetin-Silibinin (Qu-Si NPs) loaded polymeric nanoparticles was assessed in comparison with pure, control and positive control. After the treatment period, Hepatoprotective effect was evaluated using liver biomarkers (SGOT, SGPT, ALP, Total protein & Total Bilirubin).

Results and Discussion

- The elevation of the SGOT, SGPT, ALP and Total bilirubin in Ethanol induced rat was higher than normal control.

- Ethanol induced animals treated with prepared dual loaded Quercetin-Rutin (Qu-Ru NPs), Quercetin-Silibinin (Qu-Si NPs) polymeric nanoformulation, the level of SGOT, SGPT, ALP and Total bilirubin remarkably decreased where as increased total protein in comparison with single loaded (Qu NPs), (Ru NPs) (Si NPs) polymeric nanoformulation and positive control group.

- On the other hand, among these five prepared nanoformulation, the dual loaded polymeric nanoformulation (DLNFs) showed significantly better hepato protective activity.

Conclusion: Hepatoprotective activities were performed to evaluate the efficacy of prepared Quercetin (Qu NPs), Rutin (Ru NPs), Silibinin(Si NPs), Quercetin-Rutin(Qu-Ru NPs), Quercetin-Silibinin(Qu-Si NPs) loaded polymeric nanoparticles. Prepared dual loaded Quercetin-Rutin(Qu-RuNPs),Quercetin-Silibinin(Qu-SiNPs) polymeric nanoformulation displayed enhanced hepato protective activity against the toxic agent Ethanol intoxicated in comparison with pure compound and single loaded polymeric nanoformulation. However, out of five prepared nanoformulation, dual loaded polymeric nanoformulation (DLNPs) showed significantly improved hepato protective activity.

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Pharmacological correction of placental insufficiency with syndrome of growth retardation fetus

Klycheva O. I and Huraseva A. B
Kursk State Medical University, Russia

Fetoplacental Insufficiency (FPI) is an important problem of obstetrics. This pathological condition leads to the development of fetal growth retardation syndrome (FGRS). Standard treatment regimens exist cannot be due to a combination of individual etiological factors and pathogenetic mechanisms of development of this complication. An important place in the treatment of occupied angioprotective drugs that improve blood flow, coagulation and rheological properties of blood, tissue perfusion, to supply them with oxygen and nutrients.

Objectives: the aim of the study was to compare the effectiveness of pharmacological agents commonly used angioprotective pentoxifylline, diosmin and dipyridamole on the results of laboratory and instrumental methods of research conducted after treatment.

Methods: the retrospective and prospective survey of 120 pregnant women in terms of gestation from 28 to 36 weeks on a clinical basis of the Department of Obstetrics and gynecology KSMU on the basis of a burden «Regional perinatal center» of the city of Kursk.

Results: the study is developed and scientifically based option monotherapy placental insufficiency to fetal growth retardation syndrome drug diosmin, aimed at improving the microcirculation in the system «mother-placenta-fetus» for the purpose of having children with a higher weight and growth parameters. It is recommended to receive a course for 1 month for 1 tablet (600 mg) per day in the morning on an empty stomach.

Conclusions: When analyzing the results of instrumental research methods after pharmacological correction, an equivalent improvement in hemodynamic parameters was revealed in both the uterine vessels and in the artery of the umbilical cord, which is due to the action of the preparation diosmin, whereas pentoxifylline has a partial positive effect on uterine and placental Blood flow and dipyridamole predominantly affects uterine blood flow.

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Subacute myelo-optic neuropathy, Alzheimer's, autophagy, cancer, and SNPs: The curious case of clioquinol continues

Alexandre Chigaev
University of New Mexico Comprehensive Cancer Center, USA

One of the first mass-produced drugs, clioquinol (5-chloro-7-iodo-quinolin-8-ol), was developed as a topical antiseptic. For many years, it was considered safe and efficacious. However, an outbreak of subacute myelo-optic neuropathy, or SMON, a debilitating disease caused by clioquinol, and almost exclusively confined to Japan, resulted in a ban of the drug. Interest in clioquinol was renewed after positive effects of the drug in Alzheimer's disease models were reported. A decade later, novel data brought additional questions and hypotheses that offered new promise. In 2011, clioquinol was identified as an inducer of autophagy, and in 2016, as a blocker of cAMP-efflux possibly mediated by two ABC transporters: ABCC4 and ABCC11. A set of SNPs that dramatically reduce transporter function in ABCC4 and ABCC11, and almost exclusively confined to the Japanese population, suggests a possible connection between SMON, clioquinol, and the transport of the nucleotide-like drugs. A "beneficial role" of selected SNPs in breast cancer, also reported only for Japanese women, may indirectly support our hypothesis that highlights the role of cyclic nucleotide efflux in the apoptotic evasion of cancer. The effect of clioquinol on CREB phosphorylation and a proposed role of CREB phosphorylation in Alzheimer's disease may indicate a previously unappreciated mechanism, whereby clioquinol may affect synaptic plasticity by altering the cAMP-dependent signaling pathway.

Clinical Pharmacology & Biopharmaceutics
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7th World Heart Congress

August 19-20, 2019   Vienna, Austria

Antiarrhythmic drugs – an updated classification after 50 years

Ming Lei
University of Oxford, UK

In the late 1960s Vaughan Williams introduced a novel classification of antiarrhythmic drugs. This scheme since has been widely used around the world and has prompted the development of new drugs with major clinical impact. Yet fifty years later, arrhythmic diseases still remain a major public health issue. Both scientific investigation and clinical practice directed at these fall behind advances in other cardiac and medical areas. These problems together have resulted in a lack of comprehensive yet clear conceptual classification of identified targets and their relationship to each of the wide range of known arrhythmic mechanisms. Repeated attempts, including that by a working group of the European Society of Cardiology in 1991 at such a clarification met only limited success.

Our recent focus article published in *Circulation* (2018;138:1879–1896) now bridges these conceptual gaps and culminates in a modernized drug classification collating findings made over the subsequent five decades. These compiled and organized studies of different molecular drug targets, their action mechanisms, and consequent clinical effects, areas in which the authors have themselves contributed, whether as experimentalists or clinicians. It augments Vaughan Williams's original framework covering the actions of sodium, potassium and calcium ions and autonomic nervous effects on these (Class I-IV). The novel categories introduced now bear on altered heart rates (Class 0), mechanical stretch (Class V); intercellular electrical communication (Class IV) and longer term structural change (Class VII). The scheme also proceeds to draw attention to *multiple drug targets and actions and possible adverse, even pro-arrhythmic, effects.*

This revised Oxford classification will therefore clarify a rational clinical use of *existing* available anti-arrhythmic drugs in relationship to their particular *mechanisms of action. It will aid identification and development of novel drugs relating their* future clinical applications to their molecular mechanisms of action.

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Postoperative analgesic use pattern in a Tertiary Care Hospital in Bangladesh

Baqui QBOF*, Johora F, Ali M and **Begum HA**
University of Oxford, UK

Statement of the Problem:. Postoperative pain is the most common problem following surgery whether patient undergoes general anesthesia or subarachnoid block. Poorly controlled postoperative pain is as associated with several complications like pneumonia, myocardial ischemia, paralytic ileus, thromoboembolism as well as an increased chance of development of chronic pain. So effective postoperative analgesia is a crucial component of surgical care. Different pharmacological modalities are available, and continue to evolve for reducing and managing postoperative pain.

Purpose of this Study: The objective of the present study was to find out the pattern of postoperative analgesic use in first postoperative day in different surgeries in a tertiary care hospital of private setting in Bangladesh.

Methodology & Theoretical Orientation: A prospective observational study was conducted among 600 patients undergoing different surgeries in a tertiary care hospital of private setting in Dhaka, Bangladesh from November 2017 to April 2018. The demographic data, types of surgery, types of therapy, choice of analgesic were collected.

Findings: Out of 600, 306 patients (51%) were male and 294 (49%) were female. Highest bulk of patients were from department of general surgery (26%), followed by department of Urology (24.5%) and department of Obstetrics & Gynecology (22.5%). Majority of patients were age group 30-39 years (26%), followed by 50-59 years (23.5%) and 40-49 years (21.5%). 248 patients (41.33%) had received monotherapy of analgesic drug, whether 276 patients (46%), 57 patients (9.5%) and 19 patients (3.2%) received two drugs combination, three drugs combination, four drugs combination respectively. Opioid analgesic, Pethidine, was the most commonly utilized analgesic as monotherapy (69.3%), followed by dexmedetomidine (20.2%) and epidural analgesic, Bupivacaine (19.4%). Combination of pethidine and paracetamol (48.2%) was the most common followed by combination of pethidine and ketorolac (12.7%) as two drug combination. As three drug combination, pethidine, paracetamol and diclofenac (35.1%) was widely used.

Conclusion & Significance: Pethidine was the preferred analgesic for first postoperatve day in different surgical cases.

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The use of herbal medicines amongst outpatients at the University of Ilorin Teaching Hospital (UITH), Ilorin, Kwara State - Nigeria

Yusuf Ghazali[1], Ibrahim Bello[1] and **Adeola Kola-Mustapha[2]**
[1]University of Ilorin Teaching Hospital, Nigeria
[2]University of Ilorin, Nigeria

Background: In Africa, particularly Nigeria, the standards of nutrition, health infrastructures and environmental sanitation are declining by the day. These drawbacks contribute significantly to the intensity of the damages caused by diseases. Therefore, there is an increasing interest in natural product remedies. This research studies the prevalence of use, pattern of use and awareness of outpatients at the University of Ilorin Teaching Hospital, Ilorin, Nigeria on the use of herbal medicines.

Methodology: Based on an informed consent, semi-structured questionnaires were used to collect data from a total of 112 outpatients about the use of herbal medicines. This sample size was derived from the Kish formula. Data obtained were analyzed by IBM SPSS Statistics software and inferences made accordingly. The study was carried out for three weeks.

Results: Demographic information revealed that 58.93% of patient-respondents were of the female gender. Individuals within the age range of 20 to above 70 years were considered. All (100.00%) of the outpatients were familiar with herbal medicines, 67.86% had used herbal medicines in the past and 25.00% were currently taking herbal medicines as at the time of study. It was also found that 54.35% of the respondents use herbal medicines in no specific dose, 47.83% use the herbs with various additives, and 39.13% take their herbs concurrently with orthodox drugs. A total of 13.73% of the respondents prefer to use herbs when sick and another 35.29% prefer a combination of herbs and orthodox drugs. The herbs were commonly procured from open markets, collected from bushes, and usually stored in clay pots, kegs and boxes.

Conclusions: Most of the patient-respondents prefer to include herbal medicines in their therapies. To this end, more efforts should be geared towards creating awareness for the general improved use of herbal medicines.

Clinical Pharmacology & Biopharmaceutics
ISSN: 2167-065X

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