Monday 5th April 2021

Arabian Gulf University
Manama, Kingdom of Bahrain
Monday, 5 April 2021 (8:30 am – 3:30 pm)

Session A1

Clinical Research Session A

Chairs: Prof. Abdelaziz ElaminElfaki and Dr. Sfoug Alshammary

8:15 – 8:30
Registration and Joining the Session
Clinical Research Session A Zoom Link: https://zoom.us/j/98713319513
Meeting ID: 987 1331 9513

8:30 – 8:33
Quraan Kareem

8:33 – 8:40
Welcome: His Excellency Dr. Khalid Al Ohaly,
President of the Arabian Gulf University

8:40 – 8:45
Welcome: Prof. Abdel Halim Defalla,
Dean of College of Medicine and Medical Sciences

8:45 – 9:00
The research activity at the College of Medicine and Medical Sciences: Progress and Future Plans
Prof. Afif Ben Saleh, Vice Dean for Graduate Studies and Research

9:00 – 9:30
Pushing biomedical research ideas along translational journeys to products.
Prof. David Grainger, Distinguished Professor and Department Chair of Biomedical Engineering, The University of Utah, USA

9:30 – 10:00
Challenges in collaborative clinical research for future Doctor and healthcare.
Prof. Raja Affendi, Dean and Professor of Medicine, Faculty of Medicine, The National University of Malaysia, Kuala Lumpur, Malaysia

10:10 – 10:30
Utility of inflammatory biomarkers in patients with COVID-19 infections: Bahrain experience
Dr. Eman Farid, Ministry of Health

10:30 – 10:50
Carcinoma of ectopic breast tissue.
Prof. Rami Yaghan, Surgery Department

10:50 – 11:10
Molecular analyses of antibiotics resistance genes in Gram-negative bacteria from seepage, fecal, and clinical samples from Bahrain with special reference to colistin resistance.
Prof. Mohammad Shahid, Microbiology & Immunology Department

11:10 – 11:30
Acetaminophen for treating patent ductus arteriosus.
Dr. Kannan Sridharan, Pharmacology & Therapeutics Department

11:30 – 11:50
Molecular genetics profile of inherited cardiomyopathies in Bahrain- preliminary results.
Dr. Cristina Skrypnnyk, Department of Molecular Medicine

11:50 – 12:10
Medical simulation in Arabian Gulf University during covid-19 pandemic
Dr. Salman Riaz, Medical Skills & Simulation Center

Break 10 Minutes

CMMS Research Day 2021 Abstract Book
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CMMS Research Day 2021 Abstract Book
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Session A2
Chairs: Prof. Khalid Bin Dayna and Dr. Mona Arekat

12:20 – 12:30 Transient elastography (TE) in outpatient clinical practice for nonalcoholic fatty liver disease (NAFLD) in Würzburg, Germany
Dr. Mohamed Ali Senbesy, Internal Medicine Department

12:20 – 12:40 Impact of attendance on academic performance of undergraduate medical students during surgical clerkship.
Dr. Hamdi Al Shenawi, Surgery Department

12:40 – 12:50 Reverse relationship of uric acid and vitamin D3 in adult patients with rheumatoid arthritis and systemic lupus erythematosus.
Dr. Adia B Hassan, Internal Medicine Department

12:50 – 01:00 Aberrant expression of microRNAs 21 and 16 and their gene targets in recurrent pregnancy loss patients.
Dr. Deeba Jairajpuri, Biochemistry Department

01:00 – 01:10 Physical and ultrasonographic examination of palmaris longus tendon in the Arabian Gulf Region
Dr. Potu Kumar, Anatomy Department

01:10 – 01:20 A rare complicated case of pregnancy; sigmoid volvulus
Mr. Faris Alsobyani, CMMS Year 6 Student

Session A3
Chairs: Prof. Fazal Dar and Prof. Moiz Bahkiet

1.30 - 1.50 The quality of life of sickle cell disease patients in Bahrain.
Prof. Afif Ben Saleh, Family and Community Medicine Department

1.50 - 2.10 Cognitive and psychiatric effects following immune reconstitution.
Prof. Mariwan Husni, Psychiatry Department

2.10 - 2.30 Public survey of financial incentives for kidney donation in Bahrain
Dr. Amgad Elagroudy, Internal Medicine Department

2.30 - 2.50 A comparative study by gender of vitamin D levels in Bahrainis and expatriates unexposed to the sun.
Dr. Tarik Alshaibani, Physiology Department

2.50 - 3.10 Acute pancreatitis in children: the clinical profile at a tertiary hospital in Bahrain.
Mr. Osama Nazzal, CMMS Student

2.50 - 3.10 Closing remarks and recommendation for both sessions

Break 10 Minutes

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Session B1
Chairs: Dr. Khaled Tabbara and Prof. Randah Hamadeh

10.10 - 10.30
Organoid models of the endometrium in vitro
Dr. Sebastien Taurin, Molecular Medicine Department

10.30 - 10.50
Four novel mutations in the mitochondrial ND4 gene of complex I in patients with multiple sclerosis
Dr. Ghada Al-Kafaji, Molecular Medicine Department

10.50 - 11.10
Effects of nicotine administration on the structure of auditory cortex of adolescent male guinea pigs, a histological and ultrastructural study
Dr. Manal Othman, Anatomy Department

11.10 - 11.30
Mitochondrial haplogroups reveals the genetic basis of diabetes mellitus type 2 comorbidity in psoriasis.
Dr. Matrah Alwehedah, Medical Laboratory Department, Kuwait University, Kuwait

11.30 - 11.50
Roles of phosphatidylinositol 3-kinases related genes among long standing ulcerative colitis and colorectal cancer patients via targeted sequencing analysis
Dr. Nurul Nadirah, Universiti Kebangsaan, Malaysia

11.50 - 12.10
Effect of using structured pre-briefing on medical students’ clinical judgement, competency, communication, and self-satisfaction.
Dr. Enas Darwish, Medical Skills & Simulation Center

Break 10 Minutes

Session B2
Chairs: Prof. Raouf Fadel and Dr. Rima Abdulrazaq

12.10 - 12.30
The impact of watching educational videos on academic achievement among medical students.
Dr. Yasin Tayem, Pharmacology & Therapeutics Department

12.30 – 12:40
Prevalence of the anatomical variations of concha bullosa and its relation with sinusitis among Saudi population: A computed tomography scan study
Dr. Wael Amin, Anatomy Department

12.40 – 12:50
Transcriptomic analysis of gene expression in Bahraini sickle cell disease patients during vaso-exclusive crisis and steady-state using microarray art.
Dr. Hawra Abdulwahab, Molecular Medicine Department

12:50 – 01:00
Is there a role for HLA-G in the induction of regulatory T cells during the maintenance of a healthy pregnancy?
Dr. Nada Alkhunaizi, Molecular Medicine Department

01:00 – 01:10
Performance of the WHOQoL-BREF in the measurement of the quality of life of sickle cell disease patients in Bahrain
Mr. Abdulla Elbarbary, CMMS Student

01:00 – 01:10
Prevalence and outcome of placenta previa at Salmaniya Medical Complex, Bahrain.
Fatema Alhubaishi, Ministry of Health

Break 10 Minutes
Session B3
Chairs: Dr. Durjoy Shome and Dr. Mai Sater

1:30 – 1:50
Enhanced anticancer activity of nano-formulation of dasatinib against triple-negative breast cancer by reduced metabolic degradation.
Prof. Khaled Greish, Molecular Medicine Department

1:50 – 2:10
Resveratrol: targeting aging-dependent male osteoporosis.
Dr. Yahya Naguib, Physiology Department

2:10 – 2:30
Proteomics analysis revealed novel associations of 37 proteins in Bah rainis with T2DM.
Dr. Rabab A.Wahab, University of Bahrain

2:30 – 2:50
Microarray-based differential gene expression profiling of the metabolic syndrome in Arabs with psoriasis in Bahrain
Dr. Manahel Alsabbagh, Molecular Medicine Department

2:50 – 3:10
The prevalence of nomophobia by population and by research tool: a systematic review, meta-analysis, and meta-regression
Ms. Noor Altooq, CMMS Student

3:10 – 3:30
Closing remarks and recommendation for both sessions, please join the Zoom link of session A:

Break 10 Minutes
David W. Grainger is a University Distinguished Professor and Department Chair of Biomedical Engineering, and Distinguished Professor of Pharmaceutics and Pharmaceutical Chemistry at the University of Utah, USA. Grainger’s research focuses on improving drug delivery methods, implanted medical device and clinical diagnostics performance, and nanomaterials toxicity. Grainger has published >220 research papers and 30 book chapters on biomaterials innovation in medicine and biotechnology, and novel surface and diagnostics chemistry (H-index 63, >15,300 citations). His research awards include a 2016 Fulbright Scholar Award (New Zealand), the 2013 Excellence in Surface Science Award (Surfaces in Biomaterials Foundation), the 2007 Clemson Award for Basic Research (Society for Biomaterials), and the 2005 American Pharmaceutical Research and Manufacture’s Association’s award for “Excellence in Pharmaceutics”. Grainger also has received several prominent university teaching and mentoring recognitions, as well as the 2019 Daniels Fund Award for Education in Research Ethics and 2020 International Award from the European Society for Biomaterials. He has served as Chair of several prominent USA research review panels and now serves on the National Institutes of Health NIBIB Council. He serves on the editorial boards for 6 major journals, past handling editor for the journal, Biomaterials, for over two decades, and a special topics editor for Advanced Drug Delivery Reviews. He has co-organized over 30 international symposia. Grainger is recognized with numerous prominent university teaching awards and has provided nearly 400 invited lectures and outreach workshops globally. He provides leadership in official Scientific Advisory Board roles on several international medical technology research consortia and global research foundations. He consults widely for the biomedical device and pharmaceutical industry and has been a principal in 6 biotech start-ups, with successful commercialization efforts and marketed medtech products. Grainger continues to emphasize translational approaches to clinical biomaterials, and validation of clinical effectiveness in implants and drug delivery systems for value-based medicine.

Raja Affendi Raja Ali graduated from The National University of Ireland (NUI), with honours degree in medicine in 2000 (MB, B.Ch., B.A.O.), and completed the general medical professional training based at the University Hospital Galway, Ireland. He received Membership of Royal Colleges of Ireland (MRCP) and Edinburgh (MRCP UK) and Masters in Medical Science (M Med.Sc) from NUI in 2004. From 2004 to 2009, he underwent a higher medical training in gastroenterology and hepatology at the various teaching hospitals in Ireland, receiving certificate of completion of specialist training (CCST) by the Royal College of Physicians of Ireland. He also completed a higher diploma in clinical teaching at the NUI as well as conferred a Doctorate of Medicine (MD) degree for his research on relationship between inflammatory bowel disease and colorectal cancer at the department of Clinical Pharmacology and Therapeutics and Regenerative Medicine, NUI. He then undertook a consultant physician and gastroenterologist at the University Hospital Galway, Ireland before returning to The National University of Malaysia Medical Centre, Kuala Lumpur as a consultant physician and gastroenterologist and associate professor in Medicine. He has been awarded several research grants by the Ministry of Higher Education, Malaysia, professional societies and various industries. His research and clinical interest focuses on inflammatory bowel disease, colorectal cancer and gut microbiome. He also serves as a council member for the Asia Pacific Association of Gastroenterology (APAGE) and educational committee member for an Asian Organization for Crohn’s and Colitis (AOCCC). He was selected by the World Endoscopy Organization to participate in Emerging Stars Program Award for 2018-2019. He is currently a President for the Malaysian Society of Gastroenterology and Hepatology and the Congress Chairman for the Asia Pacific Digestive Week (APDW) meeting, which will be held virtually on August 19 – 22, 2021. He is a fellow of the Royal College of Physicians of Edinburgh (FRCP) and American Gastroenterological Association (AGAF) and had completed The Oxford Executive Leadership Program. He currently serves as a Dean, Professor of Medicine and senior consultant gastroenterologist at The National University of Malaysia Medical Centre, Kuala Lumpur, Malaysia.
Translation of biomedical research to clinical benefit is the rallying cry of the modern medical research establishment. "Translation" is defined as the essential process of turning observations in the laboratory, clinic and community into interventions that improve the health of individuals and the public — from diagnostics and therapeutics to medical procedures and behavioral changes. Many countries follow the U.S. technology transfer system practices, transferring academic innovations to industry through intellectual property protection and licensing for commercialization. Validated scientific evidence generated in relevant research testbeds is required to address both unmet needs and the divides between biomedical research and clinical challenges. Many challenges are commonly identified in translating observations from model experimental biomedical research systems (e.g., in silico, in vitro, ex vivo, or in vivo in animals) towards treatments of human diseases and improvement of clinical practices. A sound understanding of the medical need, its underlying causes and consequences, current approaches, pinch-points and challenges, and how preclinical data are likely to be clinically relevant, appear necessary to confidently proceed from preclinical to clinical testing for validation. Nonetheless, formidable barriers frequently preclude ready achievement of this Keynote translational mission. This talk will describe a personal journey of biomedical technology translation involving several different technologies, challenges and translational strategies. The message after multiple attempts is that, while many ways exist to both fail and to succeed, many possible strategies can achieve technology translation. All involve: 1) securing exclusive protection of freedom to operate, 2) mechanisms to move concepts from university to a commercial effort at the proper time, 3) partners with business and regulatory experience, and 4) routes to product manufacturing sophistication, economy and payment as insurance reimbursement.
Utility of inflammatory biomarkers in patients with COVID-19 infections: Bahrain experience

Eman Farid1,2; Kannan Sridharan3, Ola AM Alsegai1,4, Safa Al Khawaja5; Eman J Mansoor6; Noor A Teraifi7; Manaf Al Qahtani6,7; Jameela Al Salman5,8

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4 College of Medicine & Medical Sciences, Arabian Gulf University, Manama, Kingdom of Bahrain.
5 Department of Internal Medicine, Salmaniya Medical Complex, Ministry of Health, Manama, Kingdom of Bahrain.
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8 Department of Internal Medicine, College of Medicine & Medical Sciences, Arabian Gulf University, Manama, Kingdom of Bahrain.

Background: COVID-19 pandemic continues, and dearth of information remains considering the utility of various inflammatory biomarkers. We carried out the present study to delineate the roles of these biomarkers in various strata of patients with coronavirus infection.

Methods: A retrospective study was carried out after obtaining approval from the relevant Ethics Committee. Patients established with COVID-19 infection as shown by positive real time quantitative polymerase chain reaction test were included. Details on their demographics, diagnosis, whether they received tocilizumab, and the values of following biomarkers were obtained: Interlekin-6 (IL-6), C-reactive protein (CRP), serum ferritin, D-dimer, procalcitonin, fibrinogen, lactate dehydrogenase and creatinine kinase. Receiver-operating characteristic curves were plotted and correlation of biomarkers with IL-6 were estimated.

Results: One-hundred and three patients were recruited. We observed that serum ferritin followed by D-dimer had better predictive accuracy in identifying patients with pneumonia compared to...
asymptomatic; and C-reactive protein in addition to the earlier markers had better accuracy for predicting severe illness compared to mild-moderate. Serum IL-6 levels were significantly higher in patients with severe illness admitted in intensive care unit. Significantly, higher levels of IL-6 and serum ferritin were observed in patients receiving tocilizumab. A trend of increased IL-6 levels was observed immediately following the initiation of tocilizumab therapy followed by a drop thereafter.

**Conclusion:** We observed serum ferritin, D-dimer and C-reactive protein to accurately predict patients developing severe COVID-19 infections as well as who may develop COVID pneumonia. A trend in IL-6 levels were observed in patients on tocilizumab therapy.

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**Carcinoma of ectopic breast tissue**

1 Rami Yaghan, 1Hamdi Al Shinawi, 1Abdulla Ismaeil, 2Lamees Yaghan, 3Siny Vs

1 Surgery Department , Arabian Gulf University
2 Medical Simulation Center, Arabian Gulf University
3 Expressmed Laboratories, Bahrain

Carcinoma developing in ectopic axillary breast tissue is not uncommon. However, carcinoma developing in sub pectoral (costal) accessory breast tissue has been encountered for three times only in the medical literature. The author will present his own experience with a 61- year-old female patient who recently developed breast carcinoma in a full ectopic breast with an accessory nipple areola complex at the level of the infra-mammary fold. This will be the first case in the literature with an objective evidence that cancer originated from the accessory nipple ducts. The challenges regarding the diagnosis, treatment modalities, and prognostic implications will be highlighted. The author will propose a classification system for such lesions with a revolutionized approach to the treatment and not simply imitating our current stereotypic algorithms in the treatment of the very common breast carcinoma occurring in the primary pectoral breasts.

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**Molecular analyses of antibiotics resistance genes (ARGs) in Gram-negative bacteria from seepage, fecal, and clinical samples from Bahrain with special reference to colistin resistance**

Mohammad Shahid1, Nermin Hasan2 Ali Al Mahmeed3, Mohd Shadaab4 Ronni Joji5 Hicham Ezzat1 Khalid Bindayna6 Khaled Tabbara1 Abdul Rahman Yousif1 Fazal K Dar1

1 Microbiology & Immunology Department Arabian Gulf University, Kingdom of Bahrain.
2 Department of Pathology, Salmaniya Medical Complex, Kingdom of Bahrain

**Background:** The study is ongoing and is proposed to determine the occurrence of ARGs in bacteria isolated from seepage (roadside pooled water), fecal samples from animals and humans, and clinical samples, with special reference to colistin-resistance.

**Methods:** A total of 400 samples will be studied (clinical=100, human stool=100, animal stool=100, water including seepage and sewage=100). Resistance markers (bla genes) for mcr-1-3, CTX-M, AmpC, TEM, SHV, NDM, KPC and OXA will be analyzed by PCR.

**Results:** Study is ongoing, 60 bacterial isolates from 27 seepage samples have been isolated. Eleven multi-drug resistant clinical isolates have been collected from SMC so far. Antibiotics susceptibility report for 8 isolates have been received. The isolates were multi-drug-resistant and showed resistance to colistin as well. PCR for blaCTX-M was performed on 8 clinical samples and all (100%) showed presence of this resistance marker. However, PCR for blaampC was performed in 10 clinical isolates and this resistance gene was noticed in only one (10%) isolate. PCR for blaCTX-M and blaampC was done on 16 isolates obtained from 4 seepage samples (each seepage sample had multiple bacterial isolates grown in culture). None of them had blaCTX-M while 2 isolates had blaampC (12.5%; 2/16). PCR for other genes, including mcr gene (for colistin), will be performed as soon as we receive our stock of primers.

**Conclusion:** Even though in its primitive stage, the findings suggest that CTX-M is quite prevalent in clinical samples while its occurrence is not frequent in the environment. blaampC is less prevalent than CTX-M in clinical samples but may have disseminated into the environment. Colistin and tigecycline resistance has appeared and needs to be analyzed in detail.

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1 Surgery Department , Arabian Gulf University
2 Medical Simulation Center, Arabian Gulf University
3 Expressmed Laboratories, Bahrain
Acetaminophen for treating patent ductus arteriosus.

Kannan Sridharan¹, Muna Al Jufairi², Eman Al Ansari², Reem Al Marzooq³, Sadiq Hasan³, Zakariya Hubail³, Abdulraoof Al Madhoob³

¹ Department of Pharmacology, Arabian Gulf University, and
² Ministry of Health, Bahrain.

Background: Recently, acetaminophen has been increasingly used in treating patent ductus arteriosus (PDA) in preterm neonates.

Aims: We present here the results of a prospective study with this dose of intravenous acetaminophen for treating PDA in critically ill preterm neonates.

Methods: Preterm neonates with hemodynamically significant PDA were enrolled. Echocardiographic monitoring, liver, and renal function tests were carried out. Standard definitions were adhered for defining acute kidney injury (AKI) and hepatotoxicity.

Results: Extreme preterm neonates were less likely to have a sustained therapeutic acetaminophen concentration after the first dose. Following multiple doses and at steady state, 97.2% and 98.8% respectively were in the therapeutic range. 78.2% neonates had successful closure of the ductus arteriosus.

Conclusion: Intravenous acetaminophen was efficacious in 78.2% of the preterm neonates with PDA. No association was observed between the serum acetaminophen concentrations and PDA closure.

Molecular genetics profile of inherited cardiomyopathies in Bahrain- preliminary results

Cristina Skrypnyk¹ Neale Kalis² Leena Sulaikekh³ Mary Joseph Lynch³ Noureddine Ben Khalaf³ Sfoug AlShammary³

¹ Molecular Medicine Department, Al Jawhara Center, College of Medicine and Medical Sciences, Arabian Gulf University
² Cardiac Center, Bahrain Defense Force Royal Medical Services Military Hospital
³ Life Sciences Department, Health Biotechnology Program, College of Graduate Studies, Arabian Gulf University

Background: Cardiac diseases are a priority for the health system and the cardiomyopathies are known for their impact into morbidity and mortality. Our study, the first in Bahrain, aims to investigate the inherited cardiomyopathies molecular genetics profile and identify a phenotype-genotype correlation.

Methods: 40 patients diagnosed with cardiomyopathies were recruited from Cardiac Center, Bahrain Defense Force Hospital. Genomic DNA was extracted from peripheral blood and saliva samples. Gene sequencing and deletion/duplication analysis was performed using a next generation sequencing (NGS) panel of 106 genes linked with inherited cardiomyopathies. The candidate disease-causing variants were verified by Sanger sequencing, MLPA-seq, array CGH. PolyPhen-2 was used to analyze mutation effect on protein stability and to predict the effect of the variants of unknown significance (VOUS).

Results: Pathogenic variants were identified in 11/40 patients (27.5%). TNNT2, MYBPC3, MYH7, CACNA1C and FHL1 genes mutations were identified in 8/11 hypertrophic cardiomyopathy patients and 2/8 had two mutations in MYBPC3 and MYH7 genes. ALMS1 and TTN genes mutations explained the dilated cardiomyopathy phenotype in 3/11 patients. A syndromic cardiomyopathy was identified in 3/11 patients (2/3 Alstrom syndrome, 1/3 Emery Dreyfuss muscular dystrophy). The cardiology management was immediately adjusted for 6/11 patients (4/6 for ICD, 2/6 for medication). 79 VOUS in 47/106 genes were identified in 37/40 patients and 19/79 were assessed by bioinformatics algorithms as possible damaging.

Conclusions: Genetic results provided a certitude causal diagnosis in 27.5% of the patients, establishing a genotype-phenotype correlation, offering a better estimated prognosis, an accurate genetic counselling and providing therapeutic guidance for the treating cardiologists.
Medical Simulation in Arabian Gulf University during COVID-19 Pandemic

Dr. Salman Riaz, Dr. Ahmed Abdalgair, Prof. Tayyir Garadah
Medical Simulation Center, Arabian Gulf University

Introduction: The year 2020 brought the surprise of COVID-19 and came along the worldwide healthcare and monetary challenges. Due to the highly contagious nature of this virus, most educational activities were also discontinued. Medical Skills and Simulation Center at Arabian Gulf University, Bahrain took the step to resume the simulation sessions, but through a new platform, the online simulation-based education.

Methods: To meet the challenges of this advanced training style, investigating and identifying the educational needs of the learners was the first step. For this, we consulted with all the disciplines, so the sessions could be planned according to their priorities and integrated with the curriculum. As online delivery of sessions required proficiency in IT skills, orientation and usage of video-conferencing solutions such as Zoom and its combination with Moodle, Big Blue Button, and Google Classroom was provided to staff. Finally, sessions were delivered using video-conference links where facilitators performed scenarios on simulators while learners attended live and participated in debriefing as they would do face-to-face. Each session was evaluated through learners’ feedback in the end.

Conclusion: Medical education was inevitable to continue pandemics may take unpredictable time to abate. Besides pandemic challenges, delivering online sessions without compromising the psychological and physical safety of the learners was a success. This gave us a new way of providing simulation-based education as e-learning will be continued in the future and the post-pandemic era because healthcare regulatory authorities have found it a way of an efficient and cost-effective method of educational delivery.
Transient elastography (TE) in outpatient clinical practice for nonalcoholic fatty liver disease (NAFLD) in Wuerzburg, Germany

Mohamed Alsenbesy1,2 Monika Rau1 Oliver Goetze1 Andres Geier1

1 Division of Hepatology, Department of Medicine II, University Hospital Wuerzburg, Germany
2 Internal Medicine Department, Qena Faculty of Medicine, South Valley University (SVU), Egypt

Background and aims: Nonalcoholic fatty liver disease (NAFLD) is increasing globally with an estimated prevalence of approximately 25%. Nonalcoholic steatohepatitis as the progressive disease entity often leads to fibrosis and end-stage disease. The majority of NAFLD patients are not diagnosed and have no access to further clinical assessment. Diagnostic pathways for individual risk evaluation fitting with available resources are of utmost importance in real-world clinical practice.

Methods: Retrospective analysis of 1346 anonymized outpatient datasets at Würzburg University Hospital, Germany. Transient elastography (TE) with controlled attenuation parameter and laboratory-based risk scores (NFS, FIB-4) were the main diagnostic workup tools for risk stratification.

Results: After preselection based on questionnaire information NAFLD still accounts for one-fifth of patients in the liver outpatient service. More than 80% of NAFLD patients receive their first-time diagnosis in our unit. Laboratory-based risk scores and TE are valuable tools for second-step risk assessment as shown in our clinical data analysis. Moreover, 65% of NAFLD patients use inpatient services for at least 1 day. The policy to perform liver biopsy in high-risk patients above the recommended threshold of 9.6 kPa if any clinical doubt exists regarding the diagnosis of cirrhosis leads to a histological down staging in almost 80%.

Conclusion: Questionnaire-based referral from primary care followed by broadly available fast-track TE and eventually liver biopsy for selected patients is the standard practice in our unit. This approach represents a feasible model to handle the large gap between availability and clinical need for TE facilities.

Impact of Attendance on Academic Performance of Undergraduate Medical Students During Surgical Clerkship

Hamdi Al Shenawi1, Rami Yaghan1, Amer Almarabheh3

1 Department of Surgery, College of Medicine and Medical Sciences, Arabian Gulf University, Bahrain
3 Department of Family and Community Medicine, College of Medicine and Medical Sciences, Arabian Gulf University, Bahrain

Background: The current study aims to evaluate the previously unexplored correlation between undergraduate medical students’ attendance during their surgical clerkship and their academic performance. It also aims to evaluate the impact of gender on such correlation.

Methods: A retrospective descriptive cross-sectional study has been conducted on 331 undergraduate medical students during their surgical clerkships at the College of Medicine and Medical Sciences (CMMS) at Arabian Gulf University (AGU), Bahrain from September 2018 to June 2020.

Results: There was a positive statistically significant correlation between students’ attendance during surgical clerkship and academic performance (r = 0.360, P < 0.01). Mean attendance rate was greater in each increasing category of academic performance: 47.95% in the weak category (less than 65%, n = 42), 57.62% in the very good performance category (65% to less than 75%, n = 108), 67.82% in the excellent performance category (85% and above, n = 55). The mean attendance rate of male students was 59.76% (SD=25.73), compared to 66.92% (SD=24.30) in the female students. T-test indicated that the difference between the mean attendance of the two groups of the students (male, female) was statistically significant (t=2.483, p < 0.05). On the other hand, the difference between the mean academic performance for the two groups of students, male & female, (t=0.284, p =0.777) was not statistically significant.

Conclusions: Our study showed a significant correlation between undergraduate medical students’ attendance during their surgical clerkship and their academic performance. Further studies are needed to stratify this correlation according to clinical and theoretical teaching activities. No correlation was found between gender and academic performance.
Reverse Relationship of Uric Acid and Vitamin D3 in Adult Patients with Rheumatoid Arthritis and Systemic Lupus Erythematosus

Adla B Hassan¹, Eman Farid², Shima Medani³, Diab E Diab⁴, Ola Al- Segai⁵

¹Consultant Rheumatologist; Internal Medicine Department, Arabian Gulf University, Bahrain
²Consultant Immunologist; Pathology Department, Salmaniya Medical Complex Hospital, Bahrain
³Immunopathologist; Pathology Department, Salmaniya Medical Complex Hospital, Bahrain
⁴Biochemist, specialized Biochemistry Department, AJC, Arabian Gulf University, Bahrain
⁵Consultant Biochemistry, Pathology Department, Salmaniya Medical Complex, Bahrain

Background: The relationship between uric acid (UA) and vitamin D3 (25(OH)D) in rheumatoid arthritis (RA) and systemic lupus erythematosus (SLE) patients has not been settled yet.

Objective: To evaluate a possible link between UA and 25(OH)D serum levels and vitamin D3 therapy in patients with RA compared to SLE.

Design: A Retrospective Study at Salmaniya Medical Complex, Ministry of Health, Bahrain.

Method: Eighty patients with RA and SLE from March 2015 to September 2018 were included in the study. Serum level of UA and 25(OH)D levels were estimated before and after oral vitamin D3 therapy. Data were analyzed using SPSS version 19.

Result: RA and SLE had a significant increase in mean serum 25(OH)D, (P=0.0001) after vitamin D3 therapy, but a decreased mean serum UA (P=0.0001). The increase in 25(OH)D was more prominent in SLE (P=0.0001) compared to RA (P=0.002), while the decrease in serum UA after vitamin D3 therapy was more prominent in RA (P=0.0001) compared to SLE (P=0.048).

Conclusion: We found an inverse relation between serum 25(OH)D and UA in adult Bahraini patients with RA and SLE, which was more pronounced in RA compared to SLE patients.

Aberrant expression of microRNAs 21 and 16 and their gene targets in recurrent pregnancy loss patients

Deeba S. Jairajpuri¹ and Naeema Mahmood²

¹ Department of Medical Biochemistry, College of Medicine and Medical Sciences, Arabian Gulf University, Manama, Bahrain.
² Department of Obstetrics and Gynecology, Salmaniya Medical Complex, Manama, Bahrain.

Background: Recurrent pregnancy loss (RPL) is when there are three or more consecutive unexplained spontaneous miscarriages with the same partner (8-12-weeks gestation). It has multiple causes, but the prime one is a defect in angiogenesis which decreases the nutrient delivery to the growing fetus and it may lead to miscarriage. Circulating microRNAs were recently described to play a potential role in pregnancy-associated complications. The microRNAs 16 and 21 are well-known angiogenesis-related microRNAs and their gene targets are vascular endothelial growth factor-A (VEGF-A) and phosphatase and tensin homolog (PTEN), respectively.

Aim: To evaluate the expression changes of microRNAs 16 and 21 and their association with the gene targets in women with RPL.

Materials and Methods: In the current study, blood samples were taken from 20 women with RPL and 20 controls. After RNA extraction, the relative expression of microRNAs and their gene targets was measured using real-time quantitative reverse transcription-PCR method.

Results: MicroRNA-21 expression was significantly decreased in both plasma (P= 0.031) and peripheral mononuclear cells (P =0.045) and could be associated with the PTEN expression (P=0.036). For microRNA-16, the expression was significantly increased in both the sample types (plasma: P= 0.042; peripheral mononuclear cells: P = 0.018) and in coordination, the expression of VEGF-A was decreased (P = 0.025).

Conclusion: The study shows the inverse relationship between the expression levels of the microRNAs (miR-16 and miR-21) and their target genes (PTEN and VEGF-A) both in plasma and peripheral mononuclear cells. This indicates their potential role in the progression and pathogenesis of the disease.
Most of the studies published on the palmaris longus (PL) prevalence are by physical examination methods. In Arab population, none of the reported prevalence studies are based on ultrasonography; hence we have undertaken this study. Our study was performed on 79 (male: 34; female: 45) young-adult Arabs. The occurrence of PL was recorded by a physical examination method—Schaeffer’s test, followed by ultrasound measurement of the thickness, width and circumference of the PL tendon at wrist and the distance of PL tendon with median nerve at wrist, bilaterally. Of 158 wrists examined, the physical examination method revealed presence of PL in 138 (87.3%) subjects, whereas in 149 (94.3%) by ultrasound method. Schaeffer’s test gave a false-negative result for 11 cases. The thickness, width and circumference of PL tendon at wrist were: 1.14±0.44 mm (right side) & 1.19±0.41 mm (left side); 4.08±1.34 mm (right side) & 4.36±1.26 mm (left side); 8.98±2.94 mm (right side) & 9.45±2.67 mm (left side), respectively. Gender differences in the thickness, width and circumference of the PL tendon at wrist were: 1.31±0.42 mm (male) and 1.06±0.40 mm (female); 4.61±1.23 mm (male) and 3.93±1.29 mm (female); 10.04±2.59 mm (male) and 8.60±2.82 mm (female), respectively. The distance of PL tendon from median nerve (measured 2 cm proximal to distal wrist crease) were: 1.30±0.63 mm & 1.24±0.61 mm on right & left sides; 1.40±0.60 mm & 1.17±0.62 mm in male and females, respectively. The ultrasonographic measurements were statistically significant among genders, while no such significance was detected between the sides. This study has documented both topographic and ultrasonographic description of the PL tendon in Gulf Arab population; ultrasonography is more reliable for detecting the PL tendon than Schaeffer’s test.
The Quality of Life of Sickle Cell Disease Patients in Bahrain.

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Background: Complications related to SCD can profoundly impact the quality of life of patients and increase the risk of developing physiological and psychological comorbidities. This study aims to deepen the knowledge of the quality of life (QoL) of SCD patients attending the primary health care centers (PHC) in Bahrain, using the World Health Organization’s Quality of Life BREF Questionnaire (WHOQOL-BREF) instrument.

Material and methods: We conducted an analytical cross-sectional study among 273 SCD patients randomly recruited from the 27 PHC in the Kingdom of Bahrain between July and August 2019. Data was collected by face-to-face interviews using the WHOQOL-BREF and Pain Catastrophizing Scales (PCS). Chi-square test permitted to compare categorical data. Mann-Whitney U and Kruskal Wallis tests permitted comparisons of medians. Estimation of the importance of the factors associated with the QoL was performed by measuring crude and adjusted odds ratios. The data was analyzed using IBM SPSS software statistical package, version 25.0 (SPSS Inc., Chicago, IL, US).

Results: A total of 273 SCD patients completed the structural interviews, 78.8% had a good QoL. The mean of overall QoL scores was (63.91, SD14.24), and total scores ranged from (28.85) to (99.04). More than half of the patients (54.6%) did not rely on any medication to relieve their pain, however, 24.9% and 26.4% are still relying on opioids and nonsteroidal anti-inflammatory drugs (NSAIDs), respectively. Multivariate analysis confirmed that only pain catastrophizing (AOR = 13.32, P > 0.001) and socio-economic status (AOR = 2.82, P = 0.003) are the predictors of the QoL of SCD patients.

Conclusion: Findings from this study advocate for a comprehensive approach in the management of SCD patients including psychological support.
Cognitive and psychiatric effects following immune reconstitution

Mariwan Husni and Nicki Panoskaltsis

Background: Aggressive inflammatory response with the release of a large amount of pro-inflammatory cytokines in an event known as “cytokine storm.” It can result from immunotherapy or certain infections, including COVID-19. Short-term immune-related adverse events are routinely described, longer-term immune consequences and sequential immune monitoring are not as well defined.

Methods: Healthy volunteers received TGN1412, a CD28 superagonist antibody, in a first-in-man clinical trial and suffered from cytokine storm. All patients underwent a comprehensive psychiatric assessment including a Structured Clinical Interview for Axis I Disorders (SCID-I), Mini Mental State examination, bedside cognitive examination and formal neuropsychometry performed between 6 and 12 months including verbal recall of Information, verbal fluency, and executive function assessment. They also had ongoing “immune monitoring” from Day 10 until 2 years after receiving TGN1412.

Results: Neurocognitive and psychological problems persisted after 2 years. All patients had some memory impairment and Impairment in attentional processing. 50% had mild-moderate depression, 33% had Post-traumatic stress disorder, and 66% had Anxiety requiring psychotherapy.

Conclusion: Neurocognitive and psychological problems persist after immune recovery following cytokine storm caused by Theralizumab, which is like COVID-19 induced cytokine storm.

Public survey of financial incentives for kidney donation in Bahrain

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Background: With the increasing prevalence of end-stage kidney disease in Bahrain, kidney donation is of vital importance. In this study we want to assess how financial incentives will influence peoples’ views and decisions regarding kidney donation. The aim is to establish strategies to increase the number of kidneys for transplantation in Bahrain.

Methods: We adapted a previously established questionnaire on financial incentives for living kidney donations. The questionnaire assessed the public opinion in Bahrain on how kidney donation can be influenced by two different financial incentives, namely 10,000 BHD and life-long health insurance. We collected a convenient sample of 446 participants by distributing an electronic version of the questionnaire. SPSS-23 software was used for data entry and analysis.

Results: Of the total participants 39% were male and 61% were female. Eighty percent of the participants believed that their chances for kidney donation will not increase in turn of receiving a financial compensation, while 20% of them believed that it will increase. Our study found that generally married participants (70%) find it a preferable development for health insurance companies to offer financial compensation for kidney donation, while non-married participants (30%) found it not a preferable but also not an adverse development (P-value 0.038). Furthermore, there is a positive correlation between age and preferable views toward financial incentives to increase kidney donation (P-value <0.001).

Conclusion: Although financial incentives for kidney donation might encourage a minority of the population, the majority will not be influenced by implanting a financial incentives’ system for kidney donation.
A Comparative Study by Gender of Vitamin D Levels in Bahrainis and Expatriates Unexposed to the Sun

Tarik Alshaibani, Amer Alansari, Ahmad Jaradat, Husain Meer, and Ameera Radhi

Background: Vitamin D deficiency is a matter of concern among Bahraini employees who work indoors with limited exposure to the sun.

Objective: To evaluate vitamin D levels of Bahraini and expatriate subjects by gender who have non-exposure to sunlight.

Method: The study was carried out on 138 (65 males, 73 female) and 117 expatriates (68 male, 49 female) on October 2019 and over one year. The level of vitamin D in the blood was tested for all groups.

Result: There was no significant difference in vitamin D in relation to gender (18.89±0.99 ng/ml in females vs 18.71±0.83 ng/ml in males). The lack of difference according to gender was noticed for both Bahraini and expatriates’ subjects and similarly among the same sex in the 2 groups, or between the overall groups.

Further, no relationship was found between Vitamin D level and between Bahrainis and expatriates (19.35 ng/ml and 18.14±0.92 ng/ml), respectively.

Conclusion: As we documented the lack of significant relationship between Vitamin D level in Bahrainis and Expatriates in all tested groups, we suggest that different types of diet or different lifestyles can compensate for sun exposure in the study population.
Organoid models of the endometrium in vitro

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Background: Endometrial cancer (EC) is the most common pelvic gynecological malignancy. EC is mainly observed in post-menopausal women; however, an increasing incidence among younger women of reproductive age has been noted and links to obesity in recent years. EC is known to arise from atypical endometrial hyperplasia (AEH). The development of AEH is poorly understood and can involve either an excess of unopposed estrogen or a lack of progesterone. The early stages of endometrial hyperplasia are asymptomatic and rely on invasive procedures such as random endometrial biopsies for diagnosis. No model of the endometrium in vitro as primary cells cannot be maintained for a long-term in culture, and immortalized cell lines change phenotype. Aim: More representative tissue models are needed to understand these early events, accurately reflecting the dynamic hormonal changes affecting the endometrium and its heterogeneity.

Methods: Stem cells were isolated from the mouse uterus and grown in a specific media optimized in the laboratory to promote the endometrium organoid formation.

Results: In this study, organoids from the mouse endometrial epithelial cells were developed. These epithelial endometrial organoids will be challenged with various estrogen concentrations in vitro to identify genes that may be differentially expressed and proteins implicated in the onset and progression of endometrial hyperplasia.

Conclusion: Such markers are clinically highly desirable to identify patients who are at greater risk for malignancy.
Multiple sclerosis (MS) is an immune-mediated neurological, inflammatory disease of the central nervous system. Recent studies have suggested that genetic variants in mitochondrial DNA (mtDNA)-encoded complexes of respiratory chain, particularly, complex I (NADH dehydrogenase), contribute to the pathogenicity of MS among different ethnicities, and targeting mitochondrial function may represent a novel approach for MS therapy. In this study, we sequenced ND genes (ND1, ND2, ND3, ND4, ND4L, ND5 and ND6) encoding subunits of complex I in 124 subjects, 60 patients with relapsing-remitting MS and 64 healthy individuals, in order to identify potential novel mutations in these patients. We found several variants in ND genes in both the patients and controls, and specific variants only in patients with MS. While the majority of these variants were synonymous, 4 variants in the ND4 gene were identified as missense mutations in patients with MS. Of these, m.11150G>A was observed in one patient, whereas m.11519A>C, m.11523A>C and m.11527C>T were observed in another patient. Functional analysis predicted the mutations, m.11519A>C, m.11523A>C and m.11150G>A, as deleterious with a direct impact on ND4 protein stability and complex I function, whereas m.11527C>T mutation had no effect on ND4 protein stability. However, the 3 mutations, m.11519A>C, m.11523A>C and m.11150G>A, as deleterious with a direct impact on ND4 protein stability and complex I function, whereas m.11527C>T mutation had no effect on ND4 protein stability. However, the 3 mutations, m.11519A>C, m.11523A>C and m.11527C>T, which were observed in the same patient, were predicted to cause a cumulative destabilizing effect on ND4 protein and could thus disrupt complex I function. On the whole, this study identified 4 novel mutations in the mtDNA-encoded ND4 gene in patients with MS, which could lead to complex I dysfunction, and further confirmed the implication of mtDNA mutations in the pathogenicity of MS. The identified novel mutations in patients with MS may be ethnic-related and may prove to be significant in personalized treatment.

Effects of Nicotine Administration on the Structure of Auditory Cortex of Adolescent Male Guinea Pigs, a Histological and Ultrastructural Study

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Background: Nicotine, the main ingredient in tobacco smoke, has always been linked to degenerative changes to the nervous system and several areas in the brain were reported to be injured due to nicotine. The effect of nicotine on the auditory system is only being recognized recently with few studies assessed the morphology. The effect of nicotine on the primary auditory cortex of young adolescent animals was addressed in this study.

Materials and Methods: Twenty young male guinea pigs of two months old were divided into two groups of 10 animals each. Group I, the control group, received daily subcutaneous injections of normal saline for one month. Group II, the nicotine-treated group, received 3 mg/Kg body weight of nicotine subcutaneously daily. After animal sacrifice, brains were removed and processed for light and electron microscopic evaluations. Morphometry was also done to light microscopic histological sections.

Results: In the nicotine-treated group, there were degenerative changes affecting the neurons, glia as well as blood capillaries. There was a darkening of neurons and disruption of their dendrites and organelles. The glial cells revealed reactivity, swelling, and cytoplasmic disruption. Blood capillaries showed collapse and thickening of their basement membrane. Morphometry revealed that the thickness of the auditory cortex has decreased as well as the dark neuronal number has increased in the treated group versus the control.

Conclusion: Nicotine administration to adolescent male guinea pigs resulted in degenerative changes affecting the auditory cortex of the brain, which emphasizes the hazardous effects of cigarette smoking, especially at a young age.
Mitochondrial haplogroups reveals the genetic basis of diabetes mellitus type 2 comorbidity in psoriasis.

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Objective: Published data has shown a clear link between psoriasis (Ps) and the increasing prevalence of comorbid conditions, such as diabetes mellitus type 2 (DM2). The mitochondrial genomic haplogroup’s role in the potential coexistence of psoriasis and DM2 comorbidity is the subject of this study.

Material and method: Ninety-eight Kuwaiti individuals were recruited in 4 cohorts (20 healthy controls (HC), 15 with DM2, 34 with psoriasis, and 29 with diabetes mellitus (PsDM2)). An Ion Torrent S5xL was used to sequence mitochondrial DNA (mtDNA). Chi-square test ($\chi^2$) was used to assess differences in the distribution of each haplogroup between cases and controls ($p < 0.05$). The Bonferroni correction was applied ($p < 0.004$). The mtDNA haplogroups were analyzed.

Result: Haplogroups R0, U, J, N, L3, M, H, X, HV, R, and K were detected in the studied population. Haplogroup M had a high risk for Ps (OR 4.0, $p = 0.003$). Haplogroup R0 and J had decreased the risk of DM2 (OR 0.28, $p = 0.007$) (few results had reported her).

Conclusion: Our results indicated that mtDNA haplogroups have a potential contribution to the pathogenesis of psoriasis and DM2 comorbidity. We showed for the first time that the comorbidity of diabetes in psoriasis may be related to mitochondrial dysfunction.

Abbreviations: Ps, Psoriasis; DM2, Diabetes mellitus; PsDM2, Psoriasis diabetes mellitus type 2; Mitochondrial DNA, mtDNA; OXPHOS, oxidative phosphorylations; MT-ND2, NADH dehydrogenase 2; AD-MT, mitochondrial type of Alzheimer disease, LHON, Leber hereditary optic neuropathy; mDM, mitochondrial diabetes; MT-CYB gene, cytochrome b gene; MT-ND2 gene, NADH dehydrogenase 2; MetS, metabolic syndrome.

Roles of Phosphatidylinositol 3-Kinases Related Genes Among Long Standing Ulcerative Colitis and Colorectal Cancer Patients Via Targeted Sequencing Analysis

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Phosphatidylinositol 3-kinases (PI3K) signaling was once discovered as an important pathway in the long-standing ulcerative colitis (UC) that has greater tendency of developing colitis-associated cancer. PI3K enzymatic activity was acknowledged to promote cancer as it played key roles in the regulation of survival, differentiation and proliferation of cancer cells. Thus, this study aimed to identify somatic mutation in PI3K-related genes among long-standing UC and colorectal cancer (CRC) patients. Targeted sequencing on thirteen PI3K-related genes was performed on 16 biopsies (n=8 long-standing UC, n=4 CRC, n=4 normal colorectal mucosa) using Agilent Sure Select Human All Exome V6. Genome Analysis Toolkit was used for variants analysis and the annotations were detected by ANNOVAR. KEGG Orthology Based Annotation System 3.0 was applied for pathway analysis. Targeted sequencing analysis has revealed 60 variants on 11 out of 13 PI3K-related genes. Total 42 significant KEGG pathways was found and only six genes (IL12RB1, IL12RB2, IL23R, STAT1, STAT3 and STAT6) have association with inflammatory bowel disease (IBD) pathway. IL23R variant; rs10899677, c.*309C>A was discovered in the majority of samples (93.75%) and showed positive correlation with IBD in genome-wide association study. IL23R acts as an inflammatory mediator by manipulating T-helper 17 responses that induce the release of pro-inflammatory cytokines. Variant rs10899677 was reported to worsen IBD clinical condition and speculated to be a strong determinant for CRC. This finding could provide an insight into finding the association of inflammation and cancer risk in cytokine-induced PI3K pathway. However, further validation using functional assays is warranted for better understanding.
Effect of using structured pre-briefing on medical students' clinical judgement, competency, communication and self-satisfaction.

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Background: Simulation based learning is widely used nowadays in medical education. Although, Pre-briefing is the introductory phase of the simulation process, it has not been well studied for its role in medical education. Structured pre-briefing using concept mapping is a type of structured conceptualization by graphical representation of knowledge in which the learner is making an effort to link, differentiate and relate concepts to each other in a hierarchical fashion.

Aim of the study: This study was aiming to study the impact of using structured pre-briefing on students’ competency, clinical judgment, assessment, and patient safety.

Methods: this study included 84 fifth year medical students. The students were divided into two groups: the experimental group included 44 students who received structured pre-briefing and the control group which included 40 students who received traditional pre-briefing. The Learner’s Clinical judgement, communication, and assessment were assessed using Creighton Competency Evaluation Instrument (C-CEI) in addition to the pre-briefing assessment questionnaire filled by the students.

Results: The competency performance score and clinical judgement scores were significantly higher in the experimental group than the control group with a highly significant P-value 0.000. Also, the perception of pre-briefing experience was shown to be greater for the experimental group who received structured pre-briefing than for the control group with P-value 0.000. There was no correlation between the total competency performance score and pre-briefing assessment score.

Conclusion: structured pre-briefing using concept mapping enhances medical students’ competency performance, clinical judgment and perceptions of pre-briefing.
The Impact of Watching Educational Videos on Academic Achievement among Medical Students

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Aim: We aimed to study fourth- and sixth-year medical students’ perceptions of watching educational videos and the impact of this on their academic achievement.

Methods: Students’ views were collected by using a self-administered questionnaire, which focused on their perceptions on the value of these videos on their learning and performance in written and practical examinations. Data was also gathered from participants on the topics and sources of the videos.

Results: Our sample was comprised of (287) students (response rate 25.74%, 62% females and 38% males). The majority of respondents agreed that watching educational videos helped them understand concepts (93.4%), made studying easier (94.1%) and more enjoyable (81.5%). Most students added that the videos helped them improve their performance in professional skills (90.8%) and written exams (77.1%). When we asked the participants whether or not they trust the videos, the majority responded positively (68.3%) to this query, particularly, if the source of the video is an academic institution (86.6%). Anatomy videos were the most common to be watched by fourth-year students (31%), followed by pathology (23.65%) and physiology (23.23%). On the other hand, the majority of sixth-year students watched videos on internal medicine (47.56%), general surgery (22.62%) and obstetrics and gynaecology (12.67%).

Conclusions: In conclusion, most students believed that watching educational videos improved learning and examination performance.

Prevalence of the anatomical variations of concha bullosa and its relation with sinusitis among Saudi population: A computed tomography scan study

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Concha bullosa (CB) is a pneumatic cavitation inside a concha in the nasal cavity. It is one of the most widely recognized nasal variations and is mostly found in the middle concha. CB is divided according to its site into three types; lamellar, bulbous and extensive. The goal of our study was to estimate the prevalence of CB among Saudi adult population and its association with sinusitis by using multidetector computed tomography (MDCT). This was a retrospective study carried out over a three-year period on 879 adult Saudi patients aged 18 years or older, referred for MDCT assessment of paranasal sinuses (PNS). 540 of subjects were males and 339 were females. Patients with facial congenital anomalies or nasal trauma were excluded from our study. CB was prevalent in both males and females among Saudi population (55.4%, 55.7%) respectively. Bilateral CB (55.5%) was more frequent than unilateral (44.5%). Extensive CB (44.0%) was the most frequent type. Sinusitis was associated more in patients with CB (48.0%) versus those who have no CB (5.9%). Conclusion: CB was prevalent among Saudi population and the most frequently recorded is the extensive type. Furthermore, the most common type associated with sinusitis was extensive CB (49.6%).
**Is there a Role for HLA-G in the Induction of Regulatory T cells during the Maintenance of a Healthy Pregnancy?**

*Nada Al-Khunaizi, *Khaled Tabbara and *Eman Farid

**Background:** Pregnancy remains an immune challenge for the uterus that has to adapt to a semi-allogeneic fetus using various regulatory mechanisms. Both HLA-G and regulatory T cells (CD4+CD25+FOXP3+ Treg) are upregulated in successful pregnancy, but not in abortion. Aim: We investigate if HLA-G plays a role in the upregulation of regulatory cells.

**Methods:** We measured the level of both sHLA-G and Treg cells in the blood of healthy pregnant multigravida, unexplained recurrent spontaneous abortions (URSA) and healthy nulliparous females. We cultured peripheral blood lymphocytes of healthy non-pregnant multigravida females who never had an abortion with lymphocytes of their partners, with and without sHLA-G to detect changes in number of Treg cells, or relevant cytokines.

**Results:** Soluble HLA-G concentrations and Treg cells percentage were significantly lower in women with URSA as compared to healthy pregnant multigravida women and were comparable to healthy non-pregnant nulliparous women. Percentage of Tregs increased between zero time and mixed lymphocyte cultures in both cultures with and without recombinant sHLA-G but no significant difference between both the two cultures. When stimulated with sHLA-G the mean extracellular IL-10 concentration was unchanged, while the mean INF-γ concentration was slightly higher with no significant difference. Intracellular TGF-β was higher in CD4+ cells after incubation with sHLA-G.

**Conclusion:** The results of this study are consistent with previous studies on the role of sHLA-G and Treg cells in inducing immune-tolerance in pregnancy. The results also suggest a possible role for HLA-G in the enrichment of Treg cells.

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**Performance of the WHOQoL-BREF in the measurement of the quality of life of sickle cell disease patients in Bahrain**


**Background:** Limited attention is devoted to the improvement of the quality of life (QoL) of patients suffering from sickle cell disease (SCD). Our study focuses on the evaluation of the performance of the WHOQoL-BREF as a tool to measure the QoL of SCD patients.

**Materials and Methods:** We conducted a cross-sectional study that enrolled 273 SCD patients from (27) primary health-care centers around Bahrain in 2019. The patients were selected using a simple random sampling technique. A designed questionnaire including the WHOQoL-BREF was filled by the patients during face to face interviews. The reliability of the WHOQoL questionnaire was assessed using the standardized Cronbach’s alpha coefficient, and the validity was measured by convergent validity, principal component analysis and confirmatory factor analysis.

**Results:** The WHOQoL-BREF had good internal consistency as Cronbach’s alpha coefficient for the overall scale was 0.91. The convergent validity results indicated that the correlation coefficients values for all domains are significantly correlated at α < 0.01. Confirmatory factor analysis found that the four-domain structure produced a robust fit to the data.

**Conclusions:** The WHOQoL-BREF tool has high reliability and validity in assessing the QoL of SCD patients in Bahrain.

**Keywords:** Validity, Reliability, Confirmatory factor analysis , Quality of Life.
Prevalence and outcome of placenta previa at Salmaniya Medical Complex, Bahrain.

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**Background:** Placenta previa (PP) is a condition when the placenta blocks the cervix thus obstructing delivery. It is considered a severe pregnancy complication as it is associated with massive maternal hemorrhage. The condition is associated with previous cesarean delivery, multiple gestation and increased maternal age. Sometimes, the placental villi abnormally adhere, invade or penetrate the myometrium, causing accreta, increta or percreta respectively. It is the most common indication for peripartum hysterectomy. The gold standard for diagnosis of PP is transvaginal ultrasound. This study aims to calculate the prevalence of PP in relation to the known risk factors and to determine the maternal outcome which will aid in improving the obstetric care of patients with placenta previa.

**Methods:** A cross sectional study of 216 PP cases diagnosed between October 2014 and December 2018 was evaluated.

**Results:** The total number of deliveries during the study period was 25693 out of which 216 were PP. Thus the Prevalence of PP is 0.84%. The mean age at diagnosis was 32.8 years. 50/216 women were primiparous at diagnosis. 1.9% were diagnosed with Placenta percreta from which 5.1% ended up with hysterectomy. 59.7% had uncomplicated elective cesarean sections at 37-38 weeks of gestation. The mean gestational age at Emergency delivery was 35.97 (+3.1). 

**Conclusion:** The study highlights that although risk factors increase the likelihood of placenta previa, Ruling it out is necessary in women with no known risk factors.
Enhanced anticancer activity of Nano-formulation of Dasatinib against Triple-Negative Breast Cancer by reduced metabolic degradation.

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Triple-negative breast cancer (TNBC) is the most aggressive breast cancer subgroup of 15%-20% of identified breast cancer cases in patients. TNBC lack of estrogen receptor (ER), progesterone receptor (PR), and human epidermal growth factor receptor 2 (HER2), contributes to recued activity of targeted therapies. Despite an initial response to chemotherapeutic treatment, Dasatinib is an approved second-generation tyrosine kinase inhibitor targeting tyrosine kinases including BCR-ABL, SRC-family kinases, c-KIT, PDGFR-α and PDGFR-β, and ephrin receptor kinase. However, dasatinib extensively binds to plasma proteins and undergoes extensive metabolism through oxidative and conjugation. The study tested the potential of nano-formulation of dasatinib to improve its pharmacokinetics. We demonstrated that the micellar preparation of dasatinib (SMA-Dasatinib) higher potency against 4T1 TNBC tumor growth in vivo compared to free dasatinib. We further attributed the enhanced effect to the encapsulation of the drug protecting it from a rapid metabolism. Our finding demonstrates the overlooked value of nanof ormulations in protecting its cargo from degradation similar to the pioneering work of Maeda and colleagues in preserving the efficacy of neocarzinostatin in SMANCS. Overall, our results may provide an alternative therapeutic strategy for TNBC management.

Resveratrol: targeting aging-dependent male osteoporosis.

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Background: Age-dependent male osteoporosis remains a poorly studied medical problem despite its significance. It is estimated that at least 1 of 5 men will suffer from osteoporotic consequences. Given that multiple mechanisms are involved in the process of senescence, much attention has been given to compounds with polymodal actions. To challenge such a health problem, we tested here the therapeutic potential of resveratrol in male osteoporosis. We also studied the possible molecular mechanisms that may underlie resveratrol effects.

Methods: Thirty male Wistar albino rats were used in the present study. Rats were divided (10/group) into: control (3–4 months old weighing 150–200 g receiving vehicle), aged (18–20 months old, weighing 350–400 g and receiving vehicle), and resveratrol treated aged (18–20 months old, weighing 350–400 g and receiving resveratrol 20 mg/kg/day for 6 weeks) groups. Assessment of serum calcium, phosphate, bone specific alkaline phosphatase, inflammatory cytokines, oxidative stress markers, and rat femur gene expression of FoxO1, SIRT1, RANKL and OPG proteins was carried out. Histopathological assessment of different levels of rat femur was also performed.

Results: Age-dependent osteoporosis resulted in significant increase in serum levels of phosphate, bone specific alkaline phosphatase, hsCRP, IL-1β, IL-6, TNF-α, MDA, NO, and RANKL gene expression. However, there was significant decrease in serum level of GSH, and gene expression of FoxO1, SIRT1 and OPG. Osteoporotic changes were seen in femur epiphysis, metaphysis and diaphysis. Resveratrol restored significantly age-dependent osteoporotic changes.

Conclusion: We concluded that resveratrol can play an important role in the prevention of male osteoporosis. Resveratrol can counter the molecular changes in male osteoporosis via anti-inflammatory, anti-oxidant and gene modifying effects.
Proteomics analysis revealed novel associations of 37 proteins in Bahrainis with T2DM

Rabab A. Wahab, Ayodele Alaiya, Zakia Shinwari, Abdul Ameer A Allaith and Hayder A. Giha

Type-2 diabetes mellitus (T2DM) is a disease associated with several metabolic disturbances including protein metabolism. In this study blood samples were obtained from Bahraini subjects, including six (6) T2DM and 6 age and sex matched non-diabetic apparently healthy controls. Both depleted and non-depleted sera were prepared from the collected blood and the global protein expression changes were evaluated by liquid chromatography tandem mass spectrometry (LC/MS-MS). Only significantly (ANOVA P < 0.05) markedly differentially expressed proteins (Maximum fold change -MFC- ≥ 1.5) were considered as candidate proteins for informatics analysis. We identified 62 proteins to be differentially expressed between T2DM and control subjects and they were grouped functionally into 16 classes of proteins. The largest class was of the immune related proteins. Approximately 25 proteins (40%) were previously shown to be related to diabetes; however, association of 37 proteins with T2DM is considered to be novel finding in this present study. Most of the identified proteins were upregulated in T2DM. All identified protein worth further detailed study in large study subjects in different populations. The identified proteins could be involved in diseases pathogenesis or potentially as disease biomarkers. Further validation in large study cohort is warranted in order to fully access their potential clinical usefulness.

Microarray-Based Differential Gene Expression Profiling of the Metabolic Syndrome in Arabs with Psoriasis in Bahrain

Manahel Mahmood Alsabbagh, Safa Taha and Moiz Bakhiet

Background: Psoriasis doubles the risk of the metabolic syndrome and its associated comorbidities. Our objective was to investigate the gene expression of the metabolic syndrome in patients with psoriasis and to measure the protein level of the differentially expressed genes.

Methods: Eighteen patients with psoriasis off treatment were recruited and assigned into two groups based on the presence or absence of the metabolic syndrome. Patients were assessed for psoriasis and metabolic syndrome clinically and biochemically. Gene regulation was explored by microarray, where two selected upregulated genes were further assessed using polymerase chain reaction and their translated protein was measured using enzyme linked immunosorbent assay.

Results: Analysis showed REL was 11 folds upregulated in microarray (p<0.005), two folds upregulated in polymerase chain reaction (p<0.05) and expressed at level of 7.140 ng/mL (p<0.05) in enzyme linked immunosorbent assay in cases compared to controls (0). On the other hands, WSB1 was nine folds upregulated in microarray (p<0.005), two folds upregulated in polymerase chain reaction (p<0.05) and unexpectedly unexpressed in enzyme linked immunosorbent assay in cases compared to controls (p>0.05).

Conclusions: The strongly differentially expressed REL and WSB1 can be used as a prognostic tool or a therapeutic target in clinical practice.
The prevalence of nomophobia by population and by research tool: a systematic review, meta-analysis, and meta-regression

Ali Humood, Noor Altooq, Abdullah Altamimi, Hasan Almoosawi, Maryam Alzafiri, Nicola Luigi Bragazzi and Haitham Jahrami
Psychiatry Department, Arabian Gulf University

Background and objectives: The unlimited and exaggerated use of mobile phones has caused the emergence of a new psychiatric disorder termed as “Nomophobia”. Nomophobia, which refers to “No-mobile-phobia”, is described as experiencing intense fear anxiety, stress, and discomfort due to the idea of being without a mobile phone or the inability to use it. No systematic review or meta-analysis has yet been performed to examine the global prevalence of nomophobia by population, by instrument. Thus, this review was performed to estimate the prevalence of nomophobia by severity.

Methods: American Psychological Association PsycINFO, Cochrane, Cumulative Index to Nursing and Allied Health Literature (CINAHL), EBSCOhost, EMBASE, MEDLINE, ProQuest Medical, ScienceDirect, Scopus, and Web of Science from inception to 14th of December 2020 were used. There was no language restriction. The random-effect meta-analysis model was used with the DerSimonian and Laird methodology.

Results: Twenty papers, involving 12,462 participants from ten countries, were evaluated for meta-analysis. The prevalence of moderate to severe nomophobia is 70.76% [95%CI 62.62%; 77.75%]. The prevalence of severe nomophobia is 20.81% [95%CI 15.45%; 27.43%]. University students appeared to be the highest group affected with a prevalence of severe nomophobia 25.46% [95%CI 18.49%; 33.98%]. Meta-regressions of severe nomophobia showed that age and sex were not a successful predictor of severe nomophobia β = -0.9732, P = 0.2672 and β = -0.9732, P = 0.4986.

Conclusions: The prevalence of severe nomophobia is approximately 21% in the general adult population. University students appeared to be the most impacted by the disorder.

List of Participants

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