

Use of Inflammatory Biomarkers as Predictors of Blood Flow and Thrombus Burden in Coronary Artery Disease Patients

Mostafa Hossam El Din Moawad^{1,2}, Ammar Mektebi³, Mohammad Tanashat⁴, Obieda Altobaishat⁵, Abdallah Abbas⁶, Alaa Ramadan⁷, Ahmed Hassan A.Rady⁸, Osama Bisht⁹

ABSTRACT

INTRODUCTION - High sensitivity C-reactive protein (hs-CRP) rises in response to numerous inflammatory stimuli. The body produces hs-CRP when the blood vessel walls are irritated. Studies in recent years have shown how closely atherosclerosis in coronary artery disease (CAD) and inflammation are related. Therefore, systemic inflammation biomarkers such as elevated CRP and decreased albumin levels were discovered to be predictive of negative cardiovascular events.

AIM - The aim of the study is to investigate the new use of inflammatory biomarkers such as hs-CRP and CRP-albumin ratio (CAR) in the prognosis and prediction of flow properties in CAD patients.

METHODS - We searched PubMed, Embase, Web of Science, and Scopus for eligible articles investigating the association between hs-CRP, and CAR with the coronary slow flow, reflow phenomenon, thrombus burden, and Thrombolysis in Myocardial Infarction (TIMI) grade. Statistical analysis was done based on random effect model and the pooled analysis of mean difference (MD), standardized mean difference (SMD) and odds ratio (OR).

RESULTS - High hs-CRP was statistically significant associated with coronary slow flow (CSF) (MD: 2.09, CI: 1.39,2.79, $p < 0.00001$), no reflow (MD: 11.89, CI: 2.66,21.12, $p = 0.01$), and TIMI < 3 (MD: 16.09, CI: 1.2,30.99, $p = 0.03$). It was a statistically significant predictor of CSF (OR: 1.68, CI: 1.22,2.32, $p = 0.001$), no reflow CSF (OR: 1.03, CI: 1.01,1.05, $p = 0.006$), and high thrombus burden CSF (OR: 1.49, CI: 1.08,2.05, $p = 0.02$). CAR was a significant predictor and statistically significant associated with no reflow and high thrombus burden.

CONCLUSION - Inflammatory biomarkers such as hs-CRP and CAR can be used as predictors for worse prognosis in CAD patients. Hs-CRP is associated with CSF, no reflow, high thrombus burden and low TIMI-grade. CAR is associated with high thrombus burden and no reflow.

KEYWORDS - hs-CRP, coronary artery disease, CRP-albumin-ratio, thrombus, flow

¹ Faculty of Pharmacy Clinical department Alexandria University, Alexandria, Egypt.

² Faculty of Medicine Suez Canal University, Ismailia, Egypt.

³ Faculty of Medicine, Kütahya Health Sciences University, Kütahya, Turkey.

⁴ Faculty of Medicine, Yarmouk University, Irbid, Jordan.

⁵ Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan.

⁶ Faculty of Medicine, Al-Azhar University, Damietta, Egypt.

⁷ Faculty of Medicine, South Valley University, Qena, Egypt.

⁸ Faculty of medicine, Ainshams University, Cairo, Egypt.

⁹ Klinikum Coburg, Klinik, für Innere Medizin I, Ketschendorfer Str. 33, 96450 Coburg

A Multi-Centric Audit to Reevaluate the Guidelines Adherence in CT-KUB X-ray Imaging In Jordan: A Retrospective, Prospective Study

Huda Baidoun¹, Mohammad Abu-Jeyyab², Marah Alabbasi², Aobmdulrahman Bani-Yassin¹,
Smhahd Mansour¹, Zaid Al-rabadi², Basil Aldibat², Yala Jawazneh², Salwa Azzawi²,
Moamlak Al-Khateeb², Mohammad Al- Mseadeen², Fadi Sawaqed³

ABSTRACT

BACKGROUND - As imaging techniques involving ionizing radiation become more prevalent, the area of the body scanned should be restricted to what is required to answer the clinical question. Therefore, this is a retrospective prospective audit that intends to evaluate the presence of over-scanning in renal computed tomography (CT) scan images during the process evaluation for urinary symptoms. This study aims to reduce the unnecessary scan length and exposure to radiation in patients who undergo CT scan for urinary symptoms.

METHODS - Radiographic images taken over a 2-months period were assessed. Unnecessary overscan above the highest kidney and under the symphysis pubis were measured as a percentage of the total length of over-scan. A target of less than 10% over-scanning was set. We collected data from three hospitals. After 5 months of educating and meetings with the staff in the radiology department, and hanging poster, additional data was collected from the 3 hospitals to recalculate the over-scan and see the improvement.

RESULTS - Out of the 88 patients who were evaluated, 100% did not meet the guidelines for renal CT imaging and were exposed to a high radiation dose. However, the minimum percentage of over-scan was 20-40% and the maximum was 80-100%. The Reaudit showed major improvement in which less patients were over scanned. The first hospital improved to have less over-scan by 40%, the second hospital less by 20% and the last hospital showed no improvement.

CONCLUSIONS - A large proportion of scans included unnecessary over-scanning above the highest kidney. Thus, identifying the appropriate anatomical landmarks for scanning and designating a follow up audit are implications that can be taken to minimize the noxious effects of emission.

¹ School of Medicine, The University of Jordan, Amman, Jordan

² School of Medicine, Mutah University, Al-Karak, Jordan

³ Department of Special Surgery, Mutah University

Dissecting Loneliness in the Digital Age: An Insight into the Experiences of Medical Students Amid and Beyond the COVID-19 Pandemic

Abdulqadir J Nashwan, Rawan Alahmad, Nour Abuafifeh, Ghazi Abuafifeh

ABSTRACT

BACKGROUND - The COVID-19 pandemic has significantly impacted medical students, affecting their learning and mental well-being. Loneliness has emerged as a critical concern among students in the medical field during this period, prompting the examination of the role of social media in shaping their experiences. This narrative review aims to explore the impact of COVID-19 on loneliness among medical students and the evolving role of social media in their lives.

METHODS - A comprehensive literature search was conducted to gather relevant studies and evidence related to loneliness among medical students, the effects of the pandemic, and the role of social media. The review considered both pre-COVID and post-COVID scenarios to identify changes in loneliness rates and the factors contributing to this phenomenon. Studies investigating the impact of social media on loneliness during the COVID-19 era were analyzed, along with potential positive and negative aspects of its use.

RESULTS - The review reveals that the COVID-19 pandemic has amplified feelings of loneliness among medical students due to the effects of lockdowns, social distancing measures, and the shift to remote learning. Studies indicate an increase in social media use during this period, offering both opportunities for connection, communication, and community building, as well as risks of cyberbullying, comparison, and increased screen time.

CONCLUSION - Addressing loneliness among medical students in the digital age is of utmost importance. The findings underscore the significance of recognizing the unique experiences of medical students amid and beyond the pandemic, and highlight the role of social media in either mitigating or exacerbating loneliness. Medical schools should implement interventions to support student well-being, including responsible social media use and fostering peer support and mentoring systems. Future research directions should focus on understanding the long-term impact of COVID-era loneliness on medical students' mental health and developing effective intervention strategies. Ultimately, this narrative review provides valuable insights into the challenges faced by medical students in the digital age and emphasizes the need for comprehensive approaches to tackle loneliness and promote student wellness.

Follow-up of Side Effects throughout the Entire Course of Coronavirus Vaccination

Mohanad Odeh¹, Ghada Nazar Al-Jussani², Abdelrahman Ashour³, Husam AlNaqah³, Hamzah Hasan³, Lana Sbitan³, Amro Dawabsheh³, and Moayad Alhawi³

ABSTRACT

INTRODUCTION - COVID-19, an infectious disease caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), primarily impacts the respiratory system. The first documented case emerged in December 2019 in Wuhan, China. Therefore, the World Health Organization (WHO) declared it a pandemic in March 2020. Vaccines are considered the most effective defense against contracting the coronavirus. There is a growing focus on documenting vaccine side effects, particularly among individuals under the age of 18.

AIM - The objective of this analytical cohort study is to document the side effects experienced by both adults and young individuals who were vaccinated at specific time intervals, within 24 hours, 72 hours, 5 days, and 1 week, throughout the Entire Course of Coronavirus Vaccination (ECoV).

METHODS - We utilized a verified online tool to gather data, and maintained complete follow-up with 1069 individuals. We investigated and quantified the associations and the nominal-by-nominal relationships between independent variables and the reported adverse effects during the (ECoV).

RESULTS - The majority of participants received the Pfizer-BioNTech vaccine (59.6%), and most had completed two doses (69.4%). Notably, very strong and statistically significant associations ($p < 0.05$, $\Phi > 0.25$) were observed for vaccine type and female gender in relation to side effects throughout (ECoV). Non-smokers reported weak statistically significant associations. Fatigue and localized pain emerged as the most frequently reported side effects, typically occurring within 24 hours and lasting less than 72 hours. Additionally, it was found that the prevalence of reported side effects was significantly higher among younger individuals under 18 years old compared to adults ($X^2(1) = 7.6$, $p = 0.006$, $\Phi = 0.11$)

¹ Department of Clinical Pharmacy and Pharmacy Practice, Faculty of Pharmaceutical Sciences, The Hashemite University, Zarqa, Jordan.

² Department of pathology and forensic medicine, Faculty of Medicines, The Hashemite University, Zarqa, Jordan.

³ Faculty of Medicine, The Hashemite University, Zarqa, Jordan.

Using ChatGPT to Predict Cancer Predisposition Genes: A Promising Tool for Pediatric Oncologists

Haneen Al-Abdallat¹, Iyad Sultan², Zaina Alnajjar³, Layan Ismail¹, Razan Abukhashabeh⁴, Layla Bitar², Mayada Abu Shanap²

ABSTRACT

BACKGROUND - Determining genetic susceptibility for Cancer Predisposition Syndromes (CPS) through Cancer Predisposition Genes (CPGs) testing is critical in facilitating appropriate prevention and surveillance strategies. This study investigates the use of ChatGPT, a large language model, in predicting CPGs using clinical notes.

METHODS - Our study involved 53 patients with pathogenic CPG mutations. Two kinds of clinical notes were used: the first visit note, containing a thorough history and physical exam, and the genetic clinic note, summarizing the patient's diagnosis and family history. We asked ChatGPT to recommend CPS genes based on these notes and compared these predictions with previously identified mutations.

RESULTS - Rb1 was the most frequently mutated gene in our cohort (34%), followed by NF1 (9.4%), TP53 (5.7%), and VHL (5.7%). Out of 53 patients, 30 had genetic clinic notes of median length 54 words. ChatGPT correctly predicted the gene in 93% of these cases. However, it failed to predict EPCAM, and VHL genes in specific patients. For the first visit notes (median length: 461), ChatGPT correctly predicted the gene in 64% of these cases.

CONCLUSION - ChatGPT shows promise in accurately predicting CPGs from clinical notes, particularly genetic clinic notes. This approach may be useful in enhancing CPG testing, especially in areas lacking genetic testing resources. With further training, there is a possibility for ChatGPT to improve its predictive potentials and expand its clinical applicability. However, additional research is needed to explore the full potential and applicability of ChatGPT.

¹ School of Medicine, University of Jordan, Amman, Jordan

² Department of Pediatric Oncology, King Hussein Cancer Center, Amman, Jordan

³ Faculty of Medicine, The Hashemite University, Zarqa, Jordan.

⁴ Medical Technologist, Department of Cell Therapy & Applied Genomics, King Hussein Cancer Center, Amman, Jordan

Awareness of Bladder Cancer Symptoms and Risk Factors in Jordan: A Nationwide Study

Abdulrahman M. Karam¹, Mohammad A. Alshrouf¹, Alaa M. Albandi¹, Abdulrahman E. Alhanbali², Waseem H. Abu-Obeida¹, Mohammad M. Tarbiah¹, Haya Hyasat¹, Ghazi M. Al-Edwan³

ABSTRACT

OBJECTIVE - This study examined the perceptions and knowledge of bladder cancer (BC) symptoms, risk factors, and variables associated with awareness.

METHODOLOGY - This is a cross-sectional study involving a total of 1737 participants aged ≥ 20 years with no history of malignancy. Data were collected using a self-administered questionnaire, and sampled from hospitals, schools, public places, and shopping malls, as well as advertisements on social media platforms. Data were analysed using descriptive statistics, and chi-square was used to test the relationship between different variables.

FINDINGS - 961 (55.3%) women and 776 (44.7%) men completed the survey with a mean age of 45.2 ± 13 years. Almost half (54.7%) of the participants graduated from a university and 12% were in the medical field. Only 21.9% of the study population and 55.1% of those who were in the medical field had prior knowledge of BC. Smoking was selected as the major risk factor for BC by only 9.5% of the participants, and smoking was believed to be twice as likely associated with lung cancer than BC. (83.9% and 41.1%, respectively). Only 26.9% were aware that painless macroscopic haematuria is BC's most common presenting symptom.

CONCLUSION - BC has high prevalence and mortality rates, hence raising awareness among the general population is crucial, particularly among those in the medical field, the less educated, and smokers. Educational programs focusing on tobacco consumption and the early signs of BC should be launched for the public and hospital staff to help spread knowledge about the disease.

KEYWORDS - awareness; bladder cancer; health knowledge; patient education; risk factors; smoking/adverse effects; tobacco use; urinary bladder neoplasms.

¹ The School of Medicine, The University of Jordan, Amman, Jordan

² Department of Pediatrics, University of Texas Medical Branch, USA

³ Division of Urology, Department of Special Surgery, Jordan University Hospital, The University of Jordan, Amman, Jordan

Behind The Scenes of Vaping and Its Systematic Effects

Zaid Ayman Kandah¹, Assim A. Telfah¹, Logain Mamoun Alobeidat¹, Moh'd Khier Ahmad Bani Musa¹, Renad Jihad Alfaleh¹, Tala Farhan AL-Quraan¹, Maryam Osama AL-Momani¹, Mohammed Alajouz¹, Mohammad Shiool¹

ABSTRACT

Nowadays, people believe that electronic cigarettes (EC) offer a safer alternative to conventional cigarettes. However, EC usage is rapidly increasing among non-smokers, especially young adults. This review aims to uncover the hidden facts about EC and determine if it lives up to its advertised benefits, including its systemic effects on our body organs. Starting with the lungs, EC or vaping use has been associated with lung injuries known as EVALI (EC or Vaping Use-Associated Lung Injury). This condition causes hypersensitive pneumonitis and impairs gas exchange, among other effects. Furthermore, EC has been linked to cardiovascular diseases, raising heart rate, blood pressure, and oxidative stress, which can lead to endothelial cell dysfunction. Additionally, it affects platelets, playing a significant role in the development of cardiovascular diseases such as thrombosis and atherosclerosis. Moving to the abdominal site, EC has various effects on organs, beginning with the kidneys. Secondhand smoking from EC can affect children, causing the progression of chronic kidney disease (CKD) and especially proteinuria. In a study conducted in 2016, 32 rats were exposed to EC liquid toxicity for 28 days, resulting in elevated creatinine levels and oxidative stress but decreased urea and uric acid levels. In the gastrointestinal system, three case reports are worth mentioning. The first involves a person developing ulcerative colitis four months after starting EC usage. The second case describes a steroid-free remission in refractory ulcerative colitis, which occurred shortly after cessation of EC usage. The last case highlights the development of necrotizing enterocolitis in an infant whose mother used C during pregnancy. Regarding the liver, exposure to glycerol in EC does not cause any essential changes in body weight, adipose tissue mass, or blood glucose levels.

¹ Department of Basic Medical Sciences, Faculty of Medicine, Yarmouk University, Irbid-Jordan

However, long-term exposure increases triglyceride and phosphatidylcholine levels in females, a phenomenon not observed in males. Moving to the pancreas, the two main metabolites of ECs, nicotine, and NNK, cause acute pancreatitis by inducing functional and histological changes within the pancreas, including actions on acinar cells and zymogen secretion. Beyond that, EC could potentially affect the brain due to its physicochemical properties. The lipophilic nature of EC components like vitamin E and vitamin E acetate may impact the blood-brain barrier (BBB). Preclinical studies on postnatal brain integrity have demonstrated that both tobacco and C cause a significant decrease in GLUT1 expression disrupting the BBB and reducing tight junction proteins, leading to increased permeability.

Many other effects are detailed in this review. Lastly, hormonal disturbances may impact the male reproductive system by decreasing testosterone levels and reducing steroidogenesis enzymes, which, in turn, increase the number of premature germ cells. In females, side effects such as disorganization of the implantation site and changes in gene expression for uterine receptivity have been observed.

Bone-Marrow Derived Stem Cells Protocol for Premature Ovarian Failure – The First Jordanian Case Study with Successful Spontaneous Pregnancy After Treatment.

Ihsan H. Naimat¹, Salma R. Al-Aomar², Majed M. Aljarrah², Leen M. AlKraimeen², Sara O. Alayan², Prabhu C. Mishra^{4*}

ABSTRACT

OBJECTIVE - Stem cell-based therapies are emerging as a promising alternative for ovarian rejuvenation, regeneration, and follicular development in women with impaired ovaries. With delayed child-bearing age, ovarian aging has become a key challenge for reproductive medicine. The aim of this study is to evaluate the effects of autologous bone marrow-derived stem cell transplantation into the ovary on ovarian reserve in women with impaired ovarian function.

MATERIAL AND METHOD - This study evaluated the effects of autologous bone marrow-derived stem cell transplantation into the ovary on ovarian reserve in women with impaired ovarian function. A method was designed to deliver bone marrow-derived stem cells directly to human ovaries.

RESULTS - The study showed that autologous bone marrow-derived stem cell ovarian transplantation led to an improvement in ovarian reserve biomarkers and reproductive outcomes. More follicles and oocytes developed after ovarian stimulation, and successful pregnancies were achieved in women with impaired ovarian functions. However, further research is still needed to determine the effect of stem cell therapy on embryo euploidy. Diagnostic hormonal levels improved post-procedure with a reduction in FSH and an increase in AMH and estradiol levels.

CONCLUSION - Stem cells hold remarkable abilities of self-renewal and differentiation into other cell types, and stem cell-based therapies offer hope to couples dealing with infertility. Autologous bone marrow-derived stem cell transplantation into the ovary may provide a novel method to restore fertility for women with impaired ovarian functions.

KEYWORDS - Bone marrow derived stem cells, premature ovarian failure, primary ovarian insufficiency, infertility, AMH, ovarian rejuvenation.

¹ Consultant gynecologist - MD Jordanian board, Owner and Founder of Eve Clinic, First Functional Cosmetic Gynecology Center in Jordan, Amman, Jordan

² Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan

³ President- International Association of Stem cell Regenerative Medicine, India.

Corresponding Author:
Prabhu C. Mishra
Email: Info@iasrmglobal.org

Breaking the Stigma: Investigating Jordanian Medical Students' Mental Health Difficulties, Risk Factors, and Coping Methods

Muna A. Salameh¹, Hadeel Yousef Tawalbeh², Amal Nazmi Haj Ahmad³, Sirin Mohammad Mansour⁴,
Batool Mohammad Mansour², Kholoud Alzyoud⁵

ABSTRACT

BACKGROUND - The goal of medical schools is to train competent, disciplined physicians to assist in the treatment of people suffering from serious illnesses. However, these demanding programs may put a chronic stressor throughout students' lives, and be at risk for developing maladaptive behaviors. The study aimed to look at the trends and features of mental disorders among medical students studying at Jordanian universities focusing on depression, anxiety, and binge eating disorders and their associated risk factors related to the culture and the learning environments in Jordan along with assessing any associated maladaptive behaviors and the degree of any associated suicidal ideation.

METHOD - It is a cross-sectional observational study that included 448 Jordanian medical students. From various universities, 299 (66.7%) were female, and 149 (33.3%) were male. Through an online survey, demographic information about the students has been gathered, and potential risk factors, maladaptive behavior, and mental health have been evaluated. The Hospital Anxiety and Depression Scale (HADS), the Binge Eating Disorder Screener (BEDS-7), and the Suicidal Ideation Attribute Scale (SIDAS) are the three scales that are employed.

RESULTS - The prevalence of anxiety was 50.7%, depression 46.7%, positive binge eating behaviors 15%, and suicidal ideation (13.2%). An excellent academic score is significantly associated with high anxiety, depression, and suicidal ideation scores. Being female and overweight were positively correlated with positive binge eating screening. The most common coping mechanisms used in order to relieve stress were: prayers and worship (59.4%) and social isolation (56%). Multivariable regression was showed that social isolation and caffeine overuse had a positive effect on abnormal anxiety and depression scores, while prayers and worships had a negative effect on anxiety, depression and suicidal ideation scores.

CONCLUSION - The prevalence of anxiety, depression, binge eating disorders, and associated suicidal ideation among Jordanian medical students is high in a concerning manner.

KEYWORDS - Depression, anxiety, eating disorders, suicidal ideation, medical students, coping mechanisms.

¹ Department of Basic Medical Sciences, Faculty of Medicine, Al-Balqa Applied University, As-Salt, Jordan

² Prince Hamzah Hospital, Amman, Jordan

³ Al Hussein New As-Salt Hospital, As-Salt, Jordan

⁴ Jordan University Hospital, Amman, Jordan

⁵ Department of Medical Imaging, Faculty of Applied Health Science, Hashemite University, Al-Zarqa, Jordan

Cancer as a Microenvironment Disease Rather than a Genetic Disease

Yara Alswaiti¹

ABSTRACT

BACKGROUND - The tumor's microenvironment (TME) is the most essential component for the cancer cells' growth, it is the surroundings that contribute to the development of neoplastic cells and ensures the presence of factors essential for their survival such as invasion, angiogenesis, immunosuppression, and chronic inflammation. Cancer can develop resistance according to what the TME's components are. The TME includes the ECM, fibroblasts, immune cells, and blood vessels. TME has a big impact on the progression of cancer, the responsiveness to therapies and developing resistance. TME leads to drug resistance by activating hypoxic pathways that ensure an ideal medium for cancer cells progression. Cancer cells can escape the immune system thanks to the acidic environment. TAMs are macrophages that differentiate when entering a tumor's environment. The two types of TAMs are M1 which mediates anti-tumor effects and the other is M2 which is a tumor promoting macrophage. These macrophages can polarize and change their type depending on the environment. TAMs stimulate growth and metastasis by increasing MMP (matrix metalloproteinase), upregulating MHC, secreting growth factors, and adapting to hypoxia by increasing HIF-1. They also prevent T-cells from effectively exerting anti-tumor effects.

METHODS - TAMs like other cells express receptors, and understanding how they interact with the TME is key for new therapeutic approaches. The receptors essential for converting TAMs to M2 are tyrosine kinases. Activation of certain RTKs can promote M2-like polarization of TAMs, contributing to an immunosuppressive tumor microenvironment. TAMs also express different receptors in different types of cancers which are associated with diverse outcomes and different prognosis. Certain Biomarkers that distinguish M2 type are (CD23, CD163, CD206, CD1a, CD1b, CD93, and CD226). These biomarkers are utilized as a tool to verify how essential TAMs are in certain types of cancer. We are aiming to discover more about how the microenvironment works with TAMs in a comprehensive way to ensure tumor's growth and how we can target specific therapies to render their existence.

RESULTS - Understanding how TAMs switch forms and which proteins mediate their transformation to M2 provides a basis for developing new therapies and prognostic tools.

CONCLUSIONS - Current approaches should be targeted to inhibit receptor kinases in TAMs. Treatment directed to the microenvironment would be a better alternative than immunotherapies, which have shown low response rate with failure to detect the possible complications.

COV-19 Vaccines-Induced Hypercoagulability and its Therapeutic Management

Romany H. Thabet^{1,2}, Nour Abdullah Shlool^{1,2}, Aya Jamal Bani iissa², Omamah Ahmad Shlool², Rama Abdullah Khrisat², Erin M Wilson³

ABSTRACT

BACKGROUND - According to the coronavirus which considered one from coronaviridae family, positive-sense, single-stranded, and enveloped RNA viruses, thrombosis is one of the serious clinical consequences of COVID-19 and its certain types vaccines, it considered as emergent state that cause serious consequences related to mortality and morbidity.

REVIEW METHODS - In this mini review study, our search included PubMed database articles, focusing mainly on English-language publications dated between 2019 and 2021. The search term "COVID-19" or "SARS-CoV-2" was combined with the following keywords: clotting, hypercoagulability, thrombotic complication, vaccination, anticoagulant and antiplatelet drugs.

OBJECTIVES - The goals of this review were understanding of pathophysiology for hypercoagulability during COVID-19, understanding of pathophysiology for hypercoagulability after vaccination against SARS-CoV-2 and illustrating the rationale for use of anticoagulants, thrombolytic and antiplatelet drugs in different COV-19 therapeutic protocols.

RESULTS - Although, the pathophysiology of hypercoagulability is still not completely clear, there are numerous evidences support that the hypercoagulability which is caused by SARS-COV-2 includes a varied and different pathophysiological mechanisms of thrombotic events such as complements activation, shutting down of anticoagulation pathway, pro-inflammatory cytokines (cytokine storm), and vascular endothelial injury. The most commonly described report of coagulopathy associated with COVID-19 was an increase in plasma D-dimer levels. Thrombotic symptoms are also seen in many recipients of certain types of SARS-COV-2 vaccines. All vaccines have been found to cause this problem, but it has been seen a lot with the AstraZeneca and Johnson vaccines. Many hypotheses have

¹Department of Pharmacology, Faculty of Medicine, Assiut University, Egypt

²Department of Basic Medical Sciences, Faculty of Medicine, Yarmouk University, Irbid, Jordan

³Assiut Health Directorate, Egypt

been developed to describe this, as interaction between vaccine and platelets or PF4 (platelet factor 4) and vaccination procedure or immunization errors. It has been found that treatment with anticoagulants and antiplatelet may prevent or slow the formation of blood clots. Recently, the focus on thrombosis treatment in COVID-19 patients has significantly increased.

CONCLUSIONS - There are many evidences support that the hypercoagulability which is caused by SARS-COV-2, includes a unique mechanism of thrombo-inflammation cascade that is triggered by viral infection and other ways. The type and components of the vaccines carrier play an important role in the formation of blood clots after receiving the vaccines. AstraZeneca and Johnson vaccines composed of replicating adenoviral vectors. Nevertheless, the benefits of taking these vaccines outweigh the risks of thrombosis caused by it. The management of hypercoagulability in COVID-19 can be difficult; due to the lack of information, clinical trials are advised to assess the effectiveness and safety of combining antiplatelet and anticoagulant medications. Controlling the spread of this virus is the goal that is sought and requires the concerted efforts of all categories.

KEYWORDS - Anticoagulant, Antiplatelet, COVID-19, Hypercoagulability, Thrombosis, Vaccine.

**This abstract paraphrased from original published one in international journal of medical reviews on December 6, 2022.

https://www.ijmedrev.com/article_164135.html

Early Intervention in the Aftermath of Trauma: Assessment and Response

Ansam Baniamer¹, Mahdi Obeidat, Emran Daradkeh, Rama Khatatbeh, Hada Shuneigat, Mohammad Al-Shormman

ABSTRACT

BACKGROUND - It is a truth universally understood that the psychological well-being of a community is an essential component in the equation that determines how successfully a community reacts to calamities and other types of catastrophes. Historically, emergency preparation planning has not placed a high priority on treating the mental and emotional health problems that are created by natural and man-made catastrophes. This is something that absolutely has to be altered. The overwhelming evidence of significant to severe psychological repercussions of natural catastrophes has been kept in the background in comparison to the more frequently reported spectacular physical destruction and agony. This has occurred despite the fact that these repercussions have been shown to have a significant impact. Because millions of people who are going through acute crisis episodes or psychological trauma do not always receive the early psychological treatments that they desperately need, there is an urgent need for tools and a framework that can rapidly and effectively promote therapies.

METHODS - We divided the issue into idea groups to achieve our purpose during our inquiry. Questions like: Triage and prediction: How to better detect post-traumatic psychopathology risk factors? Are there predictable, What should be considered while triaging political trauma and war survivors? Crisis management and risk mitigation: What urgent behavioral issues should trauma survivors be addressed? Psychosocial or pharmaceutical "emotional analgesics" for trauma victims? How effective? Are they dangerous? Psychopathology prevention across time: What new psychosocial or pharmaceutical approaches can prevent trauma-related psychopathology? Can hydrocortisone, propranolol, oxytocin, or benzodiazepines prevent PTSD or other post-traumatic disorders? Crisis response ethics: When interfering in traumatic memory acquisition, encoding, retrieval, and reconsolidation, what are the ethical limits? What ethical issues arise during crisis interventions, and what should be considered?

RESULTS - More information is needed to help develop strategies for the effective management of the psychological consequences of trauma around the world, with a focus on developing mental health strategies that are culturally sensitive and valid for a variety of trauma events and disaster scenarios, and that help to know the possible clinical reactions after a traumatic event. Those at risk for developing post-traumatic stress disorder (PTSD) should have a psychological evaluation soon after a stressful event. A greater understanding of and capacity to effectively manage traumatic cerebrovascular lesions promises to deliver better therapeutic results for these fragile patients, notwithstanding the difficulty of managing trauma sufferers.

¹ Faculty of Medicine, Yarmouk University, Irbid, Jordan

Efficacy and Safety of POLARx Cryoballoon versus High-Power Short-Duration Radiofrequency Ablation for the Treatment of Atrial Fibrillation: A Systemic Review and Meta-Analysis

Mohammad I. Alrosan^{1*}, Obada A. Daqdouq², Sohaib Orssan¹, Jana Alieoah¹, Lama M. Bani Salameh², Batool Almomani¹, Ahmed Aljabali², Rasheed Ibdah³, Mohammad Alomari⁴

ABSTRACT

BACKGROUND - Cryoballoon and radiofrequency catheter ablation currently are the most used ablation procedures for the treatment of drug-refractory symptomatic atrial fibrillation. We conducted this meta-analysis to assess the efficacy and safety between POLARx and High-Power Short Duration in atrial fibrillation patients.

METHOD - Databases including Scopus, PubMed, and the Cochrane Library were systematically searched from 2000 to the end of November 2022. Our systemic review included both clinical trials and observational studies. Studies, where patients are refractory to antiarrhythmic drugs who underwent pulmonary vein isolation for the first time with reporting procedural characteristics, were included. The primary outcomes of our meta-analysis were procedure time, ablation time, and fluoroscopy time. The secondary outcomes were atrial fibrillation recurrence and procedural-related complications. The risk of bias was assessed using Cochrane methods. Risk ratios, mean differences, and 95% confidence intervals were measured using the Inverse-Variance method.

RESULTS - Twenty studies were included in our meta-analysis. Our results revealed that POLARx in comparison to High-Power Short Duration had significantly shorter procedure time (89.74 min vs 117.20 min), significantly shorter ablation time (16.77 min vs 32.66 min), and longer fluoroscopy time (12.84 min vs 9.69 min). As well as higher atrial fibrillation recurrence rate (RR= 0.27 vs 0.17) in POLARx group, HPSD showed lower risk of procedural-related complication with 5 out of 470 compared to POLARx 55 out of 802 patients experienced adverse events related to the procedure.

CONCLUSIONS - Both procedures were comparable in terms of overall efficacy and safety. While POLARx was associated with shorter procedure and ablation times, it also resulted in higher fluoroscopy time, higher atrial fibrillation recurrence rates were recorded in POLARx, with higher procedure complications rates.

¹ Faculty of Medicine, Yarmouk University, Irbid, Jordan

² Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan

³ Division of Cardiology, Department of Internal Medicine, Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan.

⁴ Department of Cardiothoracic Surgery, Mayo Clinic, Jacksonville, Florida, USA

Corresponding Author:
Mohammad Alrosan
Email: Alrosan_mohammed@yahoo.com

Efficacy and Safety of Tiger II Versus Judkins Catheters in Coronary Angiogram via the Right Radial Artery Access: A Meta-Analysis

Mohammad M. Alawajneh¹, Ahmed Aljabali¹, Arafat Hammad¹, Danh Nguyen², Ahmed M. Altibi³

ABSTRACT

BACKGROUND - Over the past ten years, trans-radial (TR) coronary angiogram (CAG) has gained widespread popularity due to the lower procedural complication rate as compared to transfemoral access. During TR-CAG, operators can use conventional (e.g., Judkins) catheters (where separate catheters are used to engage the left and right coronary arteries) or single dedicated catheters (e.g., Tiger II), specifically designed to engage both coronary arteries using the same catheter. In this meta-analysis, we sought to compare the safety and efficacy of Tiger II versus Judkins catheters in TR-CAG.

METHODS - We searched PubMed, Web of Science, Scopus, and Cochrane Library from inception through June 2022 for original studies reporting on comparative outcomes of Tiger II versus Judkins catheters in patients undergoing TR-CAG. Fixed- and random-effect models were used to pool the estimates of odds ratios (OR) and standardized mean differences (SMD) between groups. The primary outcomes were total fluoroscopy time and contrast volume. Secondary outcomes were procedural time, direct radiation exposure, procedural success, radial artery vasospasm, and crossover rate.

RESULTS - Seven reports (5 randomized trials and 2 retrospective cohorts) of 2879 patients (1,799 in Tiger II and 1080 in the Judkins group) were included in this meta-analysis. Tiger II catheter use was associated with significantly lower fluoroscopy (SMD= -0.50 minutes, 95% CI [-0.80, -0.19], P<0.01) and total angiography time (MD= -2.00 minutes, 95% CI [-2.35, -1.66], P<0.01). Total contrast volume usage was significantly lower in the Tiger II group (MD= -7.48 ml, 95% CI [-12.66, -2.29], P<0.01). Similarly, the incidence of radial artery spasms was lower in the Tiger II group (OR = 0.30, 95% CI [0.12,0.75], P=0.01). There was no significant difference in the dose-area product (DAP), which is a measure of direct radiation exposure, between the two groups (SMD= -0.12, 95% CI [-0.25,0.01], P=0.06). Also, there were no significant differences in terms of procedural success (OR = 0.91, 95% CI [0.07,12.62], P = 0.94) or crossover rate (OR = 1.89, 95% CI [0.46,7.81], P = 0.38) between the two groups.

CONCLUSION - Compared to the standard Judkins catheter, the use of Tiger II catheter in trans-radial CAG was associated with a significantly reduced fluoroscopy time, total procedural time, contrast volume, and radial artery spasm incidence. On the other hand, there was no significant difference between either catheter in radiation exposure, rate of procedural success, or crossover.

¹ Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan

² Department of Internal Medicine, University of Texas Southwestern Medical Center, Dallas, TX, USA

³ Oregon Health & Science University, Portland, OR, USA

Efficacy and Safety of Somapacitan vs Somatropin in Children and Adults with Growth Hormone Deficiency: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

Obieda Altobaishat¹, Mohammad Tanashat², Abdulrahman Sharaf³, Omar Abdullah Bataineh¹,
Tungki Pratama Umar⁴, Abdallah Bani-salameh¹, Yazan Al-Ajlouni⁵, Mostafa Hossam Moawad⁶

ABSTRACT

BACKGROUND - Growth Hormone Deficiency (GHD) is a medical disorder defined by insufficient pituitary gland production or release of growth hormone (GH). GHD can affect people of all ages, causing physical and psychological issues. Somatropin is a natural kind of human GH that is frequently administered to treat GHD. It has been suggested to be beneficial in relieving GHD-related problems, with the ability to help children reach their genetic height potential, especially if it is started at an early stage of the disease. However, injection discomfort and the relative inconvenience of administration of somatropin (once-daily use) continue to be an issue that limit therapy adherence in both children and adults. In order to reduce this inconvenience, somapacitan which is a long acting growth hormone analogue has been investigated for weekly use. Therefore, we conducted this systematic review and meta-analysis to compare between somatropin and somapacitan regarding safety, efficacy and patients' compliance.

METHODS - We searched PubMed, Web of Science, and Scopus databases for all eligible articles comparing somapacitan and somatropin. Statistical analysis for required outcomes was done using Review Manager software. We compared between the two drugs in the mean change from baseline of height velocity (HV), height velocity standard deviation score (HV SDS) in children, and insulin-like growth factor-I SDS (IGF-I SDS) in adults. We also evaluated the Treatment Satisfaction Questionnaire for Medication-9 (TSQM-9) and incidence of adverse events in adults.

RESULTS - There was no statistically significant difference between both groups in mean change of HV, and HV SDS except when using a small weekly dose of somapacitan (0.04 mg/kg weekly) vs (0.034 mg/kg daily) of somatropin as somatropin produced more significant effects. Somapacitan was statistically associated with higher mean change in IGFI-SDS compared to somatropin. No statistically significant difference in adverse events was observed between both groups except for the rash which was higher in somatropin group, however, somapacitan was statistically significant associated with higher TSQM-9 score than somatropin.

CONCLUSION - Somapacitan with a dose of 0.16 mg/kg weekly is associated with same efficacy outcomes compared to daily dosing of somatropin and better IGFI-SDS score. It is associated with more satisfaction due to lower number of injections and doses as observed by TSQM-9. We recommend the weekly use of 0.16 mg/kg of somapacitan over the use of somatropin daily doses.

KEYWORDS - growth hormone, growth hormone deficiency, TSQM-9, height velocity, somapacitan.

¹ Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan.

² Faculty of Medicine, Yarmouk University, Irbid, Jordan.

³ Department of Clinical Pharmacy, Salmaniya Medical Complex, Government Hospital, Manama, Bahrain.

⁴ Faculty of Medicine, Universitas Sriwijaya, Palembang, Indonesia

⁵ School of Medicine, New York Medical College, New York, USA.

⁶ Faculty of Pharmacy, Clinical department Alexandria University, Alexandria, Egypt

Short-term Prognosis for Endometrial Cancer Patients with Liver Metastasis

Ibraheem M. Alkhaldeh¹, Ahmed Aljabali², Ahmad S. Tarawneh³, Ahmad Hassanat³

ABSTRACT

BACKGROUND - The most frequent cancer of the female reproductive system in developed countries is endometrial cancer (EC). According to incidence rates and fatality rates among all cancer cases in women in the US, EC is ranked fourth and sixth, respectively. 11.9% of EC patients developed distant metastases to the liver. There are still few investigations on liver metastasis, despite research being done on the EC population with distant metastasis in the bone and lungs. Our study aimed to develop a prediction model to predict the short-term mortality of endometrial cancer patients with liver metastasis.

METHODS - Data from the Surveillance, Epidemiology, and End Results (SEER) database of EC patients with liver metastasis diagnosed between 2010 and 2016 were retrospectively analyzed. The screened prognostic factors (age at diagnosis, marital status, race, and year of diagnosis. Additionally, we collect data on tumor characteristics, including tumor grade, histologic type, surgery, chemotherapy, radiation, and other sites metastases) which were used to construct prediction models. The outcome of interest is the mortality of EC patients with liver metastasis within 1 month of diagnosis. feature correlation and Permutation importance with Random Forest (RF), Easy Ensemble (EE), and Artificial Neural Network (ANN) for feature selection were used. RF, EE, and ANN were used to create prediction models with factorized and one hot encoding deployed. Both ML models were 2-fold cross-validated, and the best-performing model was chosen based on the area under the curve (AUC) value and F score.

RESULTS - Among 1034 female patients with endometrial carcinoma complicated with liver metastasis were found 247 (23,8%) died within the first month. 697 (67.4%) patients were aged 60 years or above. Most of our patients were white 699 (67.6%), unmarried 624 (60.3%). Feature selection showed that metastasis to lung, bone or brain metastases were the top performing features, in addition to chemotherapy which dramatically decreased mortality during the 1st month. Our experiment showed that using the RF and EE is the best choice classifiers (AUC=0.87, F1=0.72) if compared to ANN. using one-hot encoding showed similar results compared to the normal factorized encoding.

CONCLUSIONS - Our findings may help clinicians with the short-term prognosis. Clinicians could more correctly weigh the advantages and dangers and determine a reasonable long-term treatment plan by estimating the risk of a patient's mortality based on individual prediction scores. This approach may be applicable to other oncology entities.

KEYWORDS - machine learning, endometrial cancer, Easy ensemble, ANN, RF.

¹ School of Medicine, Mutah University, Al-Karak, Jordan

² Jordan University of Science and Technology, Irbid, Jordan

³ Faculty of Information Technology Mutah University, Karak, Jordan

Estimating the Prevalence of Undiagnosed Diabetes in Jordan: Utilizing the Finnish Diabetes Risk Score for Assessment

Suhel.F.Batarseh¹, Ansam Zakaria², Issa Baniamer², Laith Mohammad Diab², Wafa' A. Mahmoud³

ABSTRACT

BACKGROUND - Diabetes mellitus is a significant global health concern, type 2 diabetes mellitus (T2DM) could account for approximately 25% of national health costs by 2050. To effectively reduce the incidence of T2DM, cost-effective methods are being implemented to identify individuals at a high risk of developing the disease. Various predictive risk scores have been developed, utilizing patient history and clinical information such as blood pressure, weight, waist circumference, and blood markers. The Finnish Diabetes Risk Score (FINDRISC) is a practical tool that has been developed to identify individuals at substantial risk of developing T2DM without the need for laboratory tests. The growing T2DM epidemic in Jordan emphasizes the need for extensive national involvement and cost-effective preventive and therapeutic measures targeting T2DM and its associated risk factors. By focusing on individuals at risk, preventive measures can have a significant impact on controlling the epidemic. The research questionnaire will utilize the FINDRISC scoring system and include variables such as gender, age, BMI, blood pressure medication use, history of hyperglycemia, physical activity, family history of diabetes, and daily intake of vegetables and fruits. The study will provide insights into the prevalence of undiagnosed diabetes, identify high-risk individuals, validate the effectiveness of the FINDRISC score in the Jordanian population, and recommend preventive measures.

METHODS - Study Design and Ethical Considerations: The study will employ a cross-sectional design to assess the risk of developing type 2 diabetes mellitus (T2DM) among the general Jordanian population over the next 10 years. Ethical considerations will be prioritized throughout the study to ensure participant consent, confidentiality, and data security.

¹ Department of Medicine at Jordan University of Science and Technology

² Yarmouk University, Department of Basic Medical Sciences, Faculty of Medicine

³ Ph.D. Assistant professor, Department of Anatomy, Faculty of Medicine Jordan University of Science & Technology.

CONSENT AND EXPLANATION OF STUDY - Participants will be provided with a consent statement that includes a clear explanation of the study's purpose, procedures, and potential risks and benefits. The consent statement will accompany the questionnaire, allowing participants to make an informed decision about their participation. It will be emphasized that participation is voluntary.

RESULTS - This data will help assess the extent of the T2DM problem and the need for preventive measures. Based on the findings of the study, recommendations can be made regarding cost-effective preventive measures to address the T2DM epidemic in Jordan. These measures may include lifestyle interventions, targeted screenings, and awareness campaigns. The study's results can contribute to raising awareness about the urgency of addressing the T2DM epidemic in Jordan. One of the Limitations was that We collected data from the General population but accidentally our major age group was between 18-25 so we will collect more data in the future, especially for people more than 25 years old like 45 >= years. Among male and female students there was a significant difference when we talked about BMI and Waist circumference $P < 0.001$ and The utilization of blood pressure medication was markedly elevated among the male population ($p=0.002$).

CONCLUSIONS - Diabetes mellitus is a significant global health concern, OUR objective in this study is to Assess the prevalence of undiagnosed diabetes in the general population of Jordan: The primary goal of the project is to determine the extent of undiagnosed diabetes cases in the population. By employing the FINDRISC score.

The Use of Platelet-rich plasma (PRP) Injections for Erectile Dysfunction: A Systematic Review and Meta-analysis

Mohammad G. Deameh^{1*}, Mostafa Deabes², Ali Aldarraji³, Baha' Aldeen Bani Irshid¹

ABSTRACT

BACKGROUND - Erectile dysfunction (ED) is a prevalent condition characterized by the inability to achieve an erection sufficient for sexual intercourse. While treatments such as oral medications (e.g., sildenafil), devices like Vacuum-assisted, and surgeries can offer symptom relief, they may be costly and not provide a definitive cure. In response to this need, we conducted a meta-analysis of randomized controlled trials to evaluate the effectiveness of Platelet-rich plasma (PRP) injections as an alternative treatment for erectile dysfunction (ED).

METHODS - We followed the PRISMA statement guidelines during the preparation of this systematic review and meta-analysis. We searched in three databases (PubMed, Scopus, and Science-direct). We included RCTs comparing Platelet-Rich Plasma with placebo in treating erectile dysfunction. Outcomes are the numbers of patients achieving the minimal clinically important difference (MCID) and change in International Index of Erectile Function-Erectile Function (IIEF-EF) from baseline were pooled as standardized mean difference (SMD) between two groups from baseline to the endpoint.

RESULTS - Our search retrieved 120 unique citations. Fourteen full-text articles were retrieved and screened for eligibility. Of the 14 full-text articles, 11 articles were excluded and three RCTs (n=221 patients) were included in this study.

Overall, Platelet Rich Plasma is more effective than a placebo in achieving MCID in the IIEF domain (OR 5.64, 95% CI 2.05-15.55, P=0.0008). Removing one study resolved heterogeneity (P=0.36, I-square=0%) while maintaining the OR in favor of Platelet Rich Plasma (OR 9.19, 95% CI 4.36-19.37, P=0.00001).

The overall mean difference of change in IIEF-EF score favored the PRP over Placebo (MD 2.99, 95% CI [1.74 to 4.24], P=0.00001). Pooled studies were homogenous (Chi-square P=0.64, I-square=0%).

CONCLUSIONS - Our systematic review and meta-analysis of randomized controlled trials suggest that Platelet-Rich Plasma (PRP) injection therapy shows promise as a potential treatment option for erectile dysfunction. Our analysis indicates statistically significant improvements in IIEF-EF scores compared to a placebo group. Nevertheless, further research is essential to validate these findings and comprehensively understand PRP's long-term safety and effectiveness. Larger scale randomized controlled trials involving diverse populations, including alternative treatment methods like oral Sildenafil or shockwave therapy, are necessary to provide more robust evidence and inform clinical practice.

¹ Urology Department, Al-Balqa Applied University, Al-Salt, Jordan

² Urology Department, Ahmed Maher Teaching Hospital, Cairo Governorate, Egypt

³ Urology Department, Zagazig university, Zagazig, Egypt

Examination of Sleep in Relation to Dietary and Lifestyle Behaviors during Ramadan: A Multi-national Study Using Structural Equation Modeling Among 24,500 Adults amid COVID-19

Moien A. B. Khan^{1*}, Ahmed S. BaHammam², Asma Amanatullah³, Khaled Obaideen⁴, Teresa Arora⁵, Habiba Ali¹, Leila Cheikh Ismail⁶, Dana N. Abdelrahim⁷, Mohammed Al-Houqani⁸, Kholoud Allaham⁹, Rand Abdalrazeq¹⁰, Wahid Sharif Aloweivi¹¹, Somayea Sultana Mim¹², Ammar Mektebi¹³, Sohrab Amiri¹⁴, Sahabi Kabir Sulaiman¹⁵, Syed Fahad Javaid¹⁶, Mohammad Delwer Hossain Hawlader¹⁷, Fatimah Isma'il Tsiga-Ahmed¹⁸, Iffat Elbarazi¹⁹, Saskiyanto Manggabarani²⁰, Gamechu Atomsa Hunde²¹, Sabrina Chelli²², Mitra Sotoudeh²³, MoezAllIslam Ezzat Faris^{6*} and Ramadan Intermittent Fasting Collaborators

ABSTRACT

BACKGROUND - Of around 2 billion Muslims worldwide, approximately 1.5 billion observe Ramadan fasting (RF) month. Those that observe RF have diverse cultural, ethnic, social, and economic backgrounds and are distributed over a wide geographical area. Sleep is known to be significantly altered during the month of Ramadan, which has a profound impact on human health. Moreover, sleep is closely connected to dietary and lifestyle behaviors.

METHODS - This cross-sectional study collected data using a structured, self-administered electronic questionnaire that was translated into 13 languages and disseminated to Muslim populations across 27 countries. The questionnaire assessed dietary and lifestyle factors as independent variables, and three sleep parameters (quality, duration, and disturbance) as dependent variables. We performed structural equation modeling (SEM) to examine how dietary and lifestyle factors affected these sleep parameters.

RESULTS - In total, 24,541 adults were enrolled in this study. SEM analysis revealed that during RF, optimum sleep duration (7–9 h) was significantly associated with sufficient physical activity (PA) and consuming plant-based proteins. In addition, smoking was significantly associated with greater sleep disturbance and lower sleep quality. Participants that consumed vegetables, fruits, dates, and plant-based proteins reported better sleep quality. Infrequent consumption of delivered food and infrequent screen time were also associated with better sleep quality. Conflicting results were found regarding the impact of dining at home versus dining out on the three sleep parameters.

CONCLUSION - Increasing the intake of fruits, vegetables, and plant-based proteins are important factors that could help improve healthy sleep for those observing RF. In addition, regular PA and avoiding smoking may contribute to improving sleep during RF.

¹College of Medicine and Health Sciences, United Arab Emirates University, Al Ain, United Arab Emirates

²Department of Internal Medicine, College of Medicine, King Saud University, Riyadh, Saudi Arabia

³Knowledge and Research Support Services Department, University of Management and Technology, Lahore, Pakistan

⁴Sustainable Energy and Power Systems Research Centre, RISE, University of Sharjah, Sharjah, United Arab Emirates

⁵Department of Psychology, Zayed University, Abu Dhabi, United Arab Emirates

⁶Department of Clinical Nutrition and Dietetics, College of Health Sciences, University of Sharjah, Sharjah, United Arab Emirates

⁷Sharjah Institute for Medical and Health Sciences, University of Sharjah, Sharjah, United Arab Emirates

⁸Internal Medicine College of Medicine and Health Sciences, United Arab Emirates University, Al Ain, United Arab Emirates

⁹Department of Neurology, Rashid Hospital, Dubai Health Authority, Dubai, United Arab Emirates

¹⁰Faculty of Medicine, Mansoura University, Mansoura, Egypt

¹¹School of Medicine, The University of Jordan, Amman, Jordan

¹²Chattogram International Medical College and Hospital, Chattogram, Bangladesh

¹³Faculty of Medicine, Kütahya Health Sciences University, Kütahya, Türkiye

¹⁴Medicine, Quran and Hadith Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran

¹⁵Department of Internal Medicine, Yobe State University Teaching Hospital, Damaturu, Nigeria

¹⁶Department of Psychiatry and Behavioral Science, College of Medicine and Health Sciences, United Arab Emirates University, Al Ain, United Arab Emirates

¹⁷Department of Public Health, North South University, Dhaka, Bangladesh

¹⁸Department of Community Medicine, Bayero University, Kano, Nigeria

¹⁹Institute of Public Health, College of Medicine and Health Sciences, United Arab Emirates University, Al Ain, United Arab Emirates

²⁰Department of Nutrition, Sekolah Tinggi Ilmu Kesehatan Pertamedika, Jakarta, Indonesia

²¹Faculty of Health Sciences, School of Nursing, Institute of Health, Jimma University, Jimma, Ethiopia

²²Royal College of Surgeons in Ireland (Bahrain), Al Muharraq, Bahrain

²³Iranshahr University of Medical Sciences, Iranshahr, Iran

Title: Exploring Drug Information Seeking Behavior among Medical Students: A Cross-Sectional Study in Jordan

Sura Al Zoubi¹, Enas A. Amireh², Mira Alsharayri³, Ezzat Jaradat³, Ghaidaa S. Khlaifat², Belal N. Obeidat², Roa'a Thaher⁴, Dana Elsalman³

ABSTRACT

BACKGROUND - Understanding the drug information seeking behavior of medical students is crucial for enhancing their competency in evidence-based medicine. This study aims to assess the drug information seeking behavior among medical students in Jordan, examining their preferred sources, utilization of online platforms, and barriers encountered in accessing reliable drug information.

METHODS - This cross-sectional study utilized a 15-item questionnaire, designed in Arabic, to survey medical students in their clinical years across Jordanian universities. The questionnaire was distributed using various social media platforms, facilitating data collection for the study.

RESULTS - The study encompassed a cohort of 640 medical students in their clinical years, representing the six universities in Jordan. Most students demonstrated a proclivity for seeking drug information pertaining to contraindications (95.9%), side effects (93%), and indications for use (81.4%). Conversely, a comparatively lower proportion of students (17.3%) exhibited an inclination to explore drug cost-related information. The primary sources of drug information utilized by the students included internet websites (73.6%), university lecturers (69%), textbooks (62.7%), and lectures/lecture notes (44.8%). Additionally, they utilized evidence-based resources, including clinical guidelines (44.8%) and research papers (43.2%). Among the internet websites used by students, popular platforms included Medscape (47.4%), UpToDate (45.9%) and Amboss (34%). Notably, a significant portion of students (47.1%) relied on the top result obtained from a Google search. Students encounter a range of barriers when seeking drug information, including difficulty in identification of trustworthy sources (58%), limited accessibility to subscription-only resources (56.5%), and the overwhelming abundance of available information resources (43.1%). When queried about drug information by patients or their relatives, 88.6% of students advise seeking advice or consulting their treating physician or specialist.

CONCLUSION - It is important to increase awareness among medical students regarding the impact of drug cost in clinical practice and the necessity of selecting reliable sources for drug information. Given the abundance of misinformation on websites, it is crucial to equip students with the skills to critically evaluate and discern accurate drug information. Moreover, instructors play a pivotal role in orienting medical students towards these crucial aspects, fostering their competence in evidence-based medicine.

¹ Department of Basic Medical Sciences, School of Medicine, Al-Balqa Applied University, As-Salt, Jordan

² Al-Hussain Al-Salt Hospital, As-Salt, Jordan

³ School of Medicine, Al-Balqa Applied University, As-Salt, Jordan

⁴ Hamad Medical Corporation, Doha, Qatar

Exploring the Relationship between Vitamin B Complexes and Different Cancer Types: A literature review

Tuqa Yousef¹, Zainab Bahder¹, Noor Bader¹, Danya AlRadaideh¹, Hala Faour¹, Rahaf Alchazal¹, Ayah AL-Wazani¹, Yasmin Hayajneh¹, Mazhar Al Zoubi^{1*}

ABSTRACT

BACKGROUND - Human beings require B vitamins such as riboflavin B2, pyridoxine B6, folate B9, and cobalamin B12 as essential chemical compounds. These vitamins are water-soluble and are obtained from food. They play a vital role in one-carbon metabolism, which influences DNA and RNA synthesis, cell division, tissue growth, DNA repair, and DNA methylation. Any imbalances in one-carbon metabolism can disrupt it, leading to potential contributions to cancer.

METHOD - We used published papers from PubMed, Cochrane Library and Scopus Library as references. These references delve into the correlation between B vitamins (B2, B6, B9, and B12) and various types of cancer, including lung, stomach, colon, prostate, lymphoma, leukemia, ovarian, and breast cancer. Additionally, they explore the potential therapeutic applications of these vitamins, as well as their capacity to either mitigate or intensify cancer risks through dietary sources or supplements .

RESULTS - Regarding the research on lung cancer, vitamin B6 may have a protective effect, especially when combined with methionine. Additionally, vitamin B12 is recommended for individuals at high risk of developing lung cancer. Regarding lymphoma, the B vitamins complex, particularly folate, have shown a positive effect, especially in combination with chemotherapy treatments. However, vitamins B6 and B2 have an inverse association with gastric cancer risk, while most studies show no significant association between B12 and gastric cancer. and folate deficiency may contribute to Helicobacter-infected gastric carcinogenesis. For colon cancer, vitamin B6 has potential preventive effects and supports overall health. However, long-term folate (B9) fortification, especially when combined with vitamin B12 supplements must be carefully consideration due to possible adverse effects on colon cancer . In the context of acute lymphoblastic leukemia (ALL), adding folate to methotrexate treatment can be beneficial, but proper timing and dosing are essential to avoid potential neurological side effects. In breast cancer, a high intake of vitamins B2, B6, B12, and folic acid has been associated with lower rates of breast cancer and reduced likelihood of specific breast cancer subtypes. Similarly, vitamins B particularly folate and vitamin B6 have been associated with a reduced risk of ovarian cancer.

CONCLUSIONS - Our study shows that vitamins B6 and B12 have a preventive effect on lung cancer and leukemia, while folate has a positive impact on lymphoma ,breast and ovarian cancers . Vitamin B complex must also be obtained from dietary sources in balanced amounts to avoid its adverse effects on cancer development .

¹ Faculty of Medicine, Yarmouk University. Irbid, Jordan

Factors That Predict the Progression of Non-alcoholic Fatty Liver Disease (NAFLD) – Review Study

Hamzah A Hasan¹, Madhangi Parameswaran², Jafor Sadeque³, Sharan Jhaveri⁴, Chaithanya Avanthika⁵, Abimbola E Arisoyin⁶, Maulik B Dhanani⁷, Swaroopa M Rath⁸

ABSTRACT

BACKGROUND - Non-alcoholic fatty liver disease (NAFLD) is characterized by the deposition of fats in more than 5% of hepatocytes, predominantly as triglycerides, in the absence of alcohol consumption, medication-induced hepatic steatosis, or hereditary/autoimmune causes. In the Middle East, NAFLD prevalence exceeds 30% in the general population. In addition, NAFLD has become the dominant form of chronic liver disease among the pediatric and adolescent age groups. The incidence of non-alcoholic steatohepatitis (NASH) and hepatocellular carcinoma associated with NAFLD is gradually increasing. Considering this information, identifying high-risk demographics and factors influencing NAFLD progression is therefore crucial.

METHODS - We conducted an all-language literature search on Medline, Cochrane, Embase, and Google Scholar until October 2021. The following search strings and Medical Subject Heading (MeSH) terms were used: “NAFLD,” “NASH,” “Fibrosis,” and “Insulin Resistance.” We reviewed the literature on NAFLD, including epidemiology, pathophysiology, genetic influences, and associated complications.

RESULTS - According to the “multiple hit” hypothesis, multiple insults contribute to NAFLD’s development. On a molecular basis, lipotoxicity, insulin resistance, mitochondrial senescence, and oxidative stress play a vital role in the pathogenesis of NAFLD. A strong association has been found between diabetes mellitus type 2 (DM2) and NAFLD. Obesity, a sedentary lifestyle and poor eating habits (high fructose drinks and fatty food) are shared risk factors for the development of NAFLD. Postmenopausal women with subclinical metabolic disturbances are at higher risk of NAFLD, emphasizing the protective role of estrogen pre-menopause. Factors associated with NASH development are body mass index (BMI) > 27, lower hip-to-waist ratios, in addition to elevated levels of ALT, AST, and serum sphingolipids (particularly ceramide). Established factors associated with advanced fibrosis in NAFLD patients were male gender, age > 40 years, Caucasian ethnicity, hypertension, a lower hip-to-waist ratio in addition to AST/ALT ratio > 1, and raised gamma-glutamyl transferase (GGT). Many genes were found associated with NAFLD. Lifestyle modifications remain the primary and most effective treatment for NAFLD.

CONCLUSIONS - NAFLD is a broad disease with multiple risk factors leading to various clinical consequences. Risk factors, like diabetes mellitus, are increasing globally, contributing to NAFLD prevalence. Despite ongoing research, there is currently no cure, so management focuses on prevention and early detection.

Falls Among Elderly People in Jordan: A Cross-sectional Study of the Prevalence, Risk Factors and Consequences of Falls Among Elderly People in Jordan

Diyaa A. Saleh^{1*}, Mohammed B. Almansour¹, Sara B. Almansour¹, Diala M. Alhazaimeh¹,
Natalie A. Alzaghoul¹, Bashar I. Momani¹

ABSTRACT

BACKGROUND - Falls are the most common cause of nonfatal trauma in the elderly. Falls are considered a serious public health problem among elderly people because of their frequency, consequences, and cost of the required health care. Approximately 30% of the elderly population aged 65 and older falls yearly and 12% to 42% of them will have a fall-related injury.

OBJECTIVES - This study aims primarily to estimate the prevalence of falls among elderly people in Jordan, in addition to investigate the associated risk factors, and identify the consequences that could result from falls.

METHODS - A total of 384 individuals aged 60 and above were included in our cross-sectional study. A probabilistic sampling method was conducted in this study to estimate the prevalence of falls among elderly people in Jordan. The data was collected using personal interviews and using special questionnaire-based forms including socio-demographics, co-morbidities, fall-related characteristics in the last 12 months and their consequences. This was conducted in Amman and Zarqa, Jordan, from August to December 2022. Data analyzed by using IBM SPSS (Statistical Package for the Social Science) software.

RESULTS - For data investigation, logistic regression and chi-squared analyses were used to predict elderly falling. The prevalence of falls was 25% among elderly in the last 12 months period, 59.4% of them were males, 52.1% had a post-fall physical injury and most of injuries were bruises (31.1%) and fractures (17.7%), and 36.5% had fear of falls. Respondents with visual, gait/balance, rheumatological and neurological disorders were associated with increased risk for falls. Elderly individuals with hearing impairment are less prone to falls than those with normal hearing. Among fallers, females were admitted to the hospital more than males. However, males were more likely than females to experience falls as well as sustain injuries.

CONCLUSIONS - The prevalence of falls has reached a quarter of the elderly population which provides clear evidence that falls is a common problem among elderly people in Jordan with numerous preventable risk factors. Falls among elderly people showed to be associated with unfavorable physical and psychological consequences. The risk factors identified in this study suggest that not only disease related intervention could prevent falls, but also patient education should be brought to the foreground.

KEYWORDS - Falls, Elderly, Jordan, Prevalence, Risk factors, Consequences.

¹ Faculty of Medicine, The Hashemite University, Zarqa, Jordan

Corresponding Author:
Diyaa A. Saleh

diyaa.ahmad98@hotmail.com

Gene Therapy Revolutionizing Ophthalmology: Advancing Treatments for Inherited Retinal Diseases

Khyary Al-Shami¹, Danya AlRadaideh¹, Islam Al-Saad¹, Batool Momani¹, Eman Alrefai¹,
Jumanah Eiadeh¹

ABSTRACT

BACKGROUND - In this groundbreaking research, we explore the transformative potential of gene therapy in ophthalmology, focusing specifically on inherited retinal diseases (IRDs) like Leber Congenital Amaurosis (LCA). Gene therapy involves the insertion of foreign DNA structures into host cells to create therapeutic agents, offering a promising avenue for treating various eye conditions, including diabetic retinopathy (DR) and age-related macular degeneration (AMD). The concept of precisely targeting specific cells through gene therapy holds significant implications for advancing treatment options and addressing previously incurable eye diseases.

METHODS - This study involves an extensive investigation of adeno-associated virus (AAV)-based gene therapy for AMD. We closely examine the delivery of beta-catenin and OphNdi1 genes to activate retinal pigment epithelium (RPE) cell proliferation and enhance mitochondrial function, respectively. Additionally, we explore a novel anti-VEGF trap, nVEGF_i, delivered through gene therapy, as a promising alternative to repetitive anti-VEGF injections. In the context of retinitis pigmentosa (RP), we assess the therapeutic efficacy of codon-optimized RPGR vectors and anti-sense oligonucleotides (ASO) targeting mutant RHO genes using mice and canine models. Furthermore, treatments targeting PDE6A, NR2E3, and PRPF31 in various RP models and successful outcomes achieved with AAV-RPE65 vectors in treating retinal diseases caused by RPE65 gene mutations are investigated. Notably, we explore gene augmentation vectors targeting MAK-associated RP and their potential for future therapeutic applications.

RESULTS - Our findings demonstrate the promising potential of gene therapy in addressing inherited retinal diseases. The activation of specific genes in AMD offers a viable approach to enhance RPE cell proliferation and mitochondrial function. The anti-VEGF trap, nVEGF_i, holds great promise as a less invasive treatment option for AMD patients. Moreover, our RP-focused gene therapy interventions

CONCLUSIONS - Gene therapy emerges as a revolutionary approach in ophthalmology, holding immense potential for treating inherited retinal diseases. Our study highlights the transformative role of gene therapy in advancing ophthalmic medicine, providing effective solutions for currently incurable eye conditions, and ultimately restoring vision for countless individuals worldwide. The ongoing progress in gene therapy research offers an exciting new era of possibilities for ophthalmic treatments, opening doors to a brighter future for patients with IRDs.

¹ Faculty of Medicine, Yarmouk University, Irbid, Jordan

Genital HSV Infections and Neonatal Encephalitis

Rana Hussein Al-Maliti
Aied Abdalmajeed Al-Fawaecer.

ABSTRACT

BACKGROUND - Encephalitis is an infection with swelling in the brain that is caused by a virus. The herpes simplex virus is the most prevalent sporadic cause of encephalitis worldwide. Moms with primary genital herpes infections late in pregnancy or at delivery have a significant risk of transmitting the infection to their child by cervical shedding of virus during labor, but the risk of transmission in moms with recurring genital infections is only a few percent. HSV infection in newborns can cause the following symptoms: Early therapy is a predictor of a better result in disseminated illness affecting many organs, most commonly the liver and lungs (25%), After a localized central nervous system (CNS) illness, With or without skin involvement (30%), morbidity ins survivors is significant; only one-third of children have normal development, illness restricted to the skin , eyes, and/or mouth (SEM disease) (45%), which has no mortality and morbidity following antiviral therapy. All HSV episodes at the time of delivery should be treated with antiviral treatment. C-section deliver should b used if active HSV is present at the time of delivery. Symptomatic and asymptomatic primary genital HSV infections are associated with premature labor and low birth weight neonates. The diagnosis of neonatal HSV might be challenging, but it should be suspected in any infant with irritability, lethargy, fever, or poor feeding at one week of age. So why we all have to know about HSV infection and its transmission from the mother to her infant? because if we raise the awareness about HSV, it will be an easier prophylactic method from HSV and it will make the diagnosis of it easier.

METHODS - In this systematic review, our focus centres on HSV transmission and symptoms, below are the references

RESULTS - We have discussed HSV infection and how it occurs. Since there is now no vaccine available, our proposed solutions include raising awareness and using prophylactic medication. Neonatal encephalitis must be taken into consideration by paediatricians for a child who is 2–4 weeks and having seizures because it most often occurs asymptotically, also in women, where only 30% of mothers had symptomatic hsv and many neonates too. The highest risk of neonatal infection occurs when the mother sheds hsv during labor. Preventing neonatal HSV infection during delivery is the best method for decreasing morbidity. Only HSV2 seropositive individuals should use antivirals.

<https://www.aafp.org/pubs/afp/issues/2002/0315/p1138.html#afp20020315p1138-b2>
<https://pubmed.ncbi.nlm.nih.gov/11925091/> <https://pubmed.ncbi.nlm.nih.gov/19230800/>
<https://pubmed.ncbi.nlm.nih.gov/26154662/> <https://pubmed.ncbi.nlm.nih.gov/15319088/>

Genomic Profiling of Patients with Uveal Melanoma Patients Utilizing the GENIE Database

Shaden Tashtoush¹, Ashaar Al-Akhras¹, Alina Ghazou¹, Sebawe Syaj¹

ABSTRACT

BACKGROUND - Uveal melanoma (UM) is the most common primary adult intraocular malignancy. BAP1, EIF1AX, GNA11, GNAQ, CHEK2, and SF3B1 are among the most frequently mutated genes in UM. The goal of this study is to investigate the genetic characteristics of uveal melanoma patients utilizing a large cohort of clinicogenomic data.

METHODS - Clinical and genomic profiles of UM patients were obtained from the AACR Project Genomics Evidence Neoplasia Information Exchange (GENIE) cohort v12.1. Patients' clinical characteristics and outcomes were described using summary statistics. The frequencies and relationships between the commonly mutated genes were studied.

RESULTS - A total of 295 UM patients were extracted from the database. Among these, 164 (55.6%) were male, 131 (44.4%) were female, most patients were of white ethnicity (83.8%), and the sample's mean age was 59.5 years (SD: 14.1). Of 242 patients with known vital status, 68.2% were alive (n = 165) and 31.8% were deceased (n = 77). Sequencing samples were obtained from the primary lesion in 141 patients and from metastatic lesions in 146 patients. Patients had a median mutation count of 3 with no difference between genders. The genes GNAQ and GNA11 were mutated at an equal rate of 43.7% of patients in the sample (n = 129). BAP1 was mutated in 35.3% of the patients, SF3B1 in 22.0%, and EIF1AX in 13.2%. The frequency of mutations did not differ significantly between genders. No patients had co-existing GNAQ and GNA11 mutations, while other gene mutations did not show significant co-occurrence or mutual exclusivity relationships.

CONCLUSIONS - Mutations in GNAQ and GNA11 were shown to be the most common among UM patients, with the two genes having a mutual exclusivity connection as no patient had the two mutations concurrently. To increase overall survival and quality of life in UM patients, new therapeutic modalities should consider complete genomic profiling.

¹ Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan

Health Literacy of Retinol Cream Usage Among Female Undergraduate Students in Jordan

Ruba F. Al-Sheyab¹, Nour A. Negresh², Raya Marji³, Husam A. ALSalamat^{4,5}, Hamzeh A. Hatamleh⁴, Noura F. Al-Nawaiseh^{4*}, Waleed F. Dabbas⁶, Tariq N. Al-Shatanawi⁷

ABSTRACT

BACKGROUND - Considering people's tendency to self-treatment, efforts to address the broad aspects of health literacy are extremely important. The study aimed to find out the level of health literacy related to the use of retinol creams among female undergraduate students of the Faculty of Artificial Intelligence at Al-Balqa Applied University.

METHODS - This study adopted an analytical descriptive research methodology by designing and applying a questionnaire tool. The questionnaire consisted, after arbitration and testing its validity and stability, of 15 items. Each item represents one of the indicators for measuring the level of health literacy about the use of retinol creams. The sample of the study was a random sample of female students in the Faculty of Artificial Intelligence at Al-Balqa Applied University.

RESULTS - A total of 221 undergraduate female students were enrolled in the study. The most important results were that the arithmetic mean for estimating the level of health culture among female students in the study on the use of retinol creams was 3.117 out of 5, with a relative weight percentage of 62.3% and an average total score on the general level of indicators of total health culture.

CONCLUSIONS - This study provided insights into the health literacy related to the use of retinol creams among female students. While the students demonstrated a high level of health education in some aspects, there were areas where their knowledge and practices could be improved. These findings can contribute to the development of educational programs and interventions aimed at promoting the safe and informed use of retinol creams among university students.

¹ Dermatology, Al-Balqa Applied University, Al-Salt, Jordan

² Emergency Medicine, Al-Balqa Applied University, Al-Salt, Jordan

³ Pathology and Forensic Medicine, Al-Balqa Applied University, Al-Salt, Jordan

⁴ Internal Medicine, Al-Balqa Applied University, Al-Salt, Jordan

⁵ Biopharmaceutics and Clinical Pharmacy, The University of Jordan, Amman, Jordan

⁶ Neurosurgery, Al-Balqa Applied University, Al-Salt, Jordan

⁷ Public Health and Community Medicine, Al-Balqa Applied University, Al-Salt, Jordan

This research was published: <https://doi.org/10.7759/cureus.40223>

How Can Relieve Migraine Pain by Biofeedback and Thermal Techniques as Alternative to the Use Analgesic Drug

Renad ALfaleh¹

¹ Faculty of Medicine , Yarmouk University Irbid , Jordan

ABSTRACT

BACKGROUND - Migraine results from a sudden expansion of the blood vessels that supply the brain, and this in turn irritates the nerves surrounding those vessels. Some people get a migraine-type headache in the form of a reaction to vigorous and violent exercise because it causes an increase in blood pressure and flow. Nervous agitation in the neck and head provokes sharp pains in the head, which are either real migraines or very similar to them. Scalp muscles: Two muscles attach to the anterior muscle, and the occipital muscle in the back. Neck muscle: The sternocleidomastoid muscle. These muscles are one of the most exciting points that cause pain in patients, especially when they contract, so it is important to provide relaxation exercises in order to relieve pain and increase blood flow. Biofeedback focuses on teaching individuals to control physiological functions, such as muscle tension and stress responses, which can be migraine triggers. It can help some people reduce the frequency or severity of their migraines by addressing underlying factors. Many scientific studies have shown a strong link between psychological exhaustion and the onset of tension headaches and migraines, as relaxation training and vital feedback provided a reduction in headaches by approximately 50%, according to one of the reviews of the literature examining non-drug treatments for migraines, and the consensus committee of the Headache Complex concluded there is strong evidence of the effectiveness of psychological therapies, including relaxation and biofeedback, for the prevention of migraine pain. Heat therapy with biofeedback, where visualization is used to get the blood to flow around the body and away from the brain. This is an action that seems to prevent the exacerbation of migraines. The best time to practice heat therapy is when the exacerbation begins.

METHODS - This is a systematic review and meta-analysis of a group of observational studies from Scopus and PubMed after using MeSH standardization and the related keywords to our topic. From research conducted in the 1980s to studies conducted recently was reached to direc-

tional effects of skin temperature self-regulation on regional cerebral blood flow in migraine patients. Vascular headache of the migraine type is associated with vasomotor changes in cerebral arteries. The authors studied whether skin temperature training (biofeedback) reduces the frequency, severity, and duration of these headaches by measuring the regional cerebral blood flow in 11 migraine patients and 9 normal volunteers using the noninvasive ¹³³Xe inhalation technique. Cerebral blood flow increased in several regions of the left hemisphere to a statistically significant degree only for the migraineurs who were in the hand-warming group.

RESULT - The hypothesis was supported that skin temperature control contributes to rCBF changes which may be responsible for the reduction of migraine symptoms. Comparison of rCBF changes measured in migraineurs and normal volunteers suggested that cerebral vasomotor reactivity was increased in migraineurs. It is a training technique whereby people learn to consciously control their bodily functions, such as heart rate or blood pressure, that are not normally under voluntary control. Clinical biofeedback is often a combination of a number of measures and tools, and an ECG provides feedback on the activity of electrical brain waves. In a normal session for biofeedback therapy, people connect to biofeedback devices and then use breathing or muscle relaxation. The devices send signals when this is achieved, people learn to relax and achieve the desired result, such as lowering blood pressure and relieving headaches, and at the same time we can generate heat in the patient's fingers, hands getting hotter, this proved. The technique is effective in relieving migraine pain by encouraging blood flow to the hands and away from the head.

CONCLUSION - biofeedback techniques are useful in treating patients with migraine, and the mechanism, presumably a placebo effect, is independent of peripheral skin temperature changes. After the patient uses heat treatment with biofeedback, the hands get hotter. This technique can help relieve migraine pain through blood flow to the hands and away from the head.

Identifying Psychosocial Problems, Needs, and Coping Mechanisms of Adolescent Syrian Refugees in Jordan

Tariq N. Al-Shatanawi¹, Yousef Khader², Husam ALSalamat^{1,3*}, Lourance Al Hadid⁴, Alaa Jarboua⁵, Basil Amarnah⁶, Osama Alkouri⁷, Mahmoud A. Alfaqih^{8,9}, Nasr Alrabadi¹⁰

ABSTRACT

BACKGROUND - Syrian refugees, particularly adolescents, face elevated risks of psychosocial challenges due to their displacement from war-torn areas. These issues not only affect their daily functioning but also impose significant strains on family structures. This study aimed to comprehensively assess the psychosocial problems, needs, and coping mechanisms of adolescent Syrian refugees in Jordan.

METHODS - This qualitative study employed semi-structured interviews with key informants and individuals. The participants comprised primary healthcare professionals, schoolteachers, Syrian parents, and adolescents aged 12–17 years. All interviews were transcribed verbatim, and thematic analysis of the original Arabic transcripts was conducted using a bottom-up inductive approach, following Braun and Clarke's six-phase iterative process. Bilingual experts translated themes and quotes into English.

RESULTS - The study included 80 participants during October to December 2018. Participants consisted of 20 primary healthcare professionals (11 males, 9 females, mean age 35.1±3.3 years), 20 schoolteachers (12 males, 8 females, mean age 34.9±3.3 years), 20 Syrian parents (12 males, 8 females, mean age 44.9±3.3 years), and 20 adolescents (10 males, 10 females, mean age 15.9±2.0 years). Psychosocial problems experienced by Syrian adolescents included stress, depression, loneliness, insecurity, isolation, aggressiveness, fear of war, and family disruption. Schoolteachers noted that Jordanian adolescents exhibited greater stability, self-confidence, and financial security compared to their Syrian peers. The Jordanian government and community received praise for providing support, including education, recreational centers, health services, and awareness campaigns. Coping mechanisms among adolescents included attending school, prayer, Quran reading, music, and socializing with friends. Respondents emphasized the need for additional services, including entertainment venues, psychosocial support, psychological counseling, medical care, job opportunities, and healthcare coverage for adolescents.

CONCLUSIONS - Despite recognizing the importance of mental health and psychosocial support, Syrian refugees face significant challenges in accessing these services. Stakeholders should engage with refugees to understand their unique needs and cultural context, tailoring services accordingly. Recommendations include awareness campaigns, gender-specific mental health programs, confidentiality measures, regular mental health assessments, group therapy, and community-based activities. Addressing financial difficulties is crucial, necessitating job opportunities, reducing child labor, and providing financial assistance to low-income families. Exploring affordable housing solutions can further support Syrian refugees in Jordan.

¹ Department of Public Health and Community Medicine, Faculty of Medicine, Al-Balqa Applied University, Al-Salt, Jordan

² Department of Public Health and Community Medicine, Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan

³ Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, The University of Jordan, Amman, Jordan,

⁴ Faculty of Nursing, Al-Balqa Applied University, Al-Salt, Jordan

⁵ Department of Legal Medicine, Toxicology and Forensic Medicine, Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan

⁶ Department of Community and Mental Health Nursing, Faculty of Nursing, Jordan University of Science and Technology, Irbid, Jordan

⁷ Faculty of Nursing, Yarmouk University, Irbid, Jordan

⁸ Department of Physiology and Biochemistry, Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan

⁹ Department of Biochemistry, College of Medicine and Medical Sciences, Arabian Gulf University, Manama, Bahrain

¹⁰ Department of Pharmacology, Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan

This research was published: <https://doi.org/10.3389/fpsy.2023.1184098>

The Clinical and the Functional Aspect of Neurotransmitters

Rama ALSayyed

ABSTRACT

Neurotransmitters are special molecules that perform as messengers in chemical synapses between neurons, cells, or receptors, including catecholamines, serotonin, dopamine, and other neurotransmitters, which play an important role in both human physiology and pathology. Neurotransmitters are divided into four main categories, including excitatory neurotransmitters (glutamate (Glu), acetylcholine (Ach), histamine, DA, NE, and epinephrine (Epi), also known as adrenaline (Ad)), inhibitory neurotransmitters (GABA, 5-HT and DA), neuro-modulators (DA, 5-HT, Ach, histamine and NE), and neurohormones released from the hypothalamus (oxytocin (Oxt) and vasopressin, also known as antidiuretic hormone (ADH)). Neurotransmitters regulate blood circulation and affect intestinal movement, nutrient absorption, the gastrointestinal innate immune system, and the microbiome. Compelling evidence has indicated that neurotransmitters have an important physiological role in various digestive diseases, as they show that the gut microbiota has the ability to influence physiological aspects of the body, including a direct communication to the brain from the gut. Neuropeptides can affect the activity of the gastro-intestinal microbiota and its interaction with the intestinal-brain axis as well as in gut brain axis there is ongoing communication from the gut to the brain in health and diseases by neuroendocrine factors. Many neurotransmitters could affect our Gut such as , Serotonin, also known as 5-hydroxytryptamine 5- HT , Catecholamines in addition to neuropeptides , where Ach which belongs to The cholinergic system is a crucial component of neuro-immune communication, as it transmits information about the peripheral immune status to the central nervous system (CNS) and vice versa.

Inside the Minds of Future Healers: Unravelling the Prevalence and Associated Factors of Alexithymia Between Medical Students at Yarmouk University a Cross-Sectional Study

Tuqa Yousef^{1*}, Hanan Batat^{1*}, Ansam Baniamer¹, Jihad Feras AlSamhori², Mohammad Obeidat¹, Huthaifah Bashabsha¹, Rawa'ah Darabseh¹

ABSTRACT

BACKGROUND - Alexithymia is a mental health disorder characterised by the inability to explain and describe feelings and emotions medical students are concerned as a high-risk population due to the nature of their studies and social life. We aim to focus on the prevalence of alexithymia among medical students in Jordan and its relationship with other psychiatric disorders and lifestyle factors.

METHODS - This study is described as a cross-sectional questionnaire. We utilize the 20-item Toronto Alexithymia Scale (TAS-20) for assessment along with the associated factors including (gender, year of study, parental marital status, grade point average, smoking status, status of accommodations, childhood abuse, and a history of mental illness), normality was tested using the Shapiro–Wilk test. The significance of the data was determined using a categorical Chi-square test, The Mann-Whitney U test and Kruskal-Wallis tests were conducted to assess potential differences in means among variables

RESULTS - This study involved 441 medical students from Yarmouk University in Irbid Jordan who completed a questionnaire assessing various aspects of their lifestyle and alexithymia levels using the Toronto Alexithymia Scale-20 (TAS-20). data shows that female and males participants percentage were (67.3%-32.7%) respectively, also most of the students were from the preclinical years with 75-100% in the academic performance and they admitted of the long use of electronic devices. on the other hand the majority of the students was not living alone nor a smoker, suffer from eating disorder, sleeping problems or got a history of psychiatric illness or Chronic illness There were significant differences between male and female respondents regarding their mean scores, with female respondents scoring higher (Female: 61.18 ± 7.636 , Male: 57.64 ± 8.415 , p -value < 0.001) and Male respondents were significantly more likely to be categorised as having no alexithymia (p -value = 0.006). Additionally, respondents who reported using their smartphones extensively for a long time in their opinion were also significantly more likely to be classified as having alexithymia (p -value = 0.007). The study further indicated a clear relationship between alexithymia and the various subscales of TAS-20 scores,

CONCLUSIONS - Alexithymia significantly increases among females and individuals experiencing eating disorders, sleep problems and prolonged smartphone usage. These individuals had difficulty expressing their emotions and exhibited low self-confidence. However, the study did not indicate any impact of alexithymia on students' academic performance or its association with other health and psychological issues.

¹ Faculty of Medicine, Yarmouk University, Irbid, Jordan

² Faculty of Medicine, University of Jordan, Amman, Jordan.

Knowledge and Attitude of Clinical Medical Students, Interns, and Residents Toward Palliative Care in Jordan: A Cross-Sectional Study

Huda Baidoun¹, Mohammad Abu-Jeyyab², Marah Alabbasi², Aobmdulrahman Bani-Yassin¹,
Smhahd Mansour¹, Zaid Al-rabadi², Basil Aldibat², Yala Jawazneh², Salwa Azzawi²,
Moamlak Al-Khateeb², Mohammad Al- Mseadeen², Fadi Sawaqed³

ABSTRACT

BACKGROUND - Palliative care is vital for enhancing the quality of life in patients with life-limiting diseases, and a comprehensive understanding of this field by healthcare providers is crucial for its advancement. However, there is a scarcity of research concerning the knowledge and attitudes of medical students, interns, and residents in Jordan regarding palliative care. This cross-sectional study aims to fill this gap and assess their understanding and perceptions toward palliative care.

METHODS - 94 medical students in the clinical years, interns, and residents from several Jordanian universities and KAUH participated in this analytical cross-sectional study. The questionnaire was disseminated via Facebook, private messaging, therapeutic forums, and emails. We analyse the data through SPSS .Knowledge assessment was conducted using the Palliative Care Knowledge Test (PCKT), a 20-item tool with yes or no responses. Attitudes were assessed using the Frommelt Attitude Toward the Care of Dying - B (FATCOD-B), a 30-item tool utilizing a 5-point Likert scale. For the study, a shortened version of FATCOD-B, consisting of 9 items, was adopted.

RESULTS - The study included adult Jordanian individuals, either medical students in clinical years (4, 5, 6), physicians completing their internship, or residents completing their residency program in Jordan. Exclusions comprised medical students in basic years or those not regularly studying medicine in clinical years, along with individuals who didn't meet inclusion criteria or declined to give informed consent. In our study, the frequencies of male participants were 40 and female participants were 54. The mean age of the participants was 22.21, and the median age was 22. Additionally, 84 participants reported that they had heard about palliative care (yes),

¹ School of Medicine, The University of Jordan, Amman, Jordan

² School of Medicine, Mutah University, Al-Karak, Jordan

³ Department of Special Surgery, Mutah University

while 10 participants indicated that they had not (no). In general, the study sample exhibited an unfavorable attitude toward palliative care, with a mean score of 25.2 out of 45. Only 48 students (50.5%) demonstrated a moderate to favorable attitude toward palliative care, scoring above 26 in the total assessment. As for knowledge, the data revealed a lack of understanding, with a mean score of 10.62 out of 20. Merely 2.1% of students achieved the maximum score of 15 out of 20 in the knowledge assessment.

CONCLUSIONS - During the analysis of our study data, we observed inadequate knowledge and unfavorable attitudes among healthcare providers regarding palliative care. Although our sample size was limited, the results provide an insightful overview of this subject.

KEYWORDS - Knowledge, Attitude, Clinical Medical Students, Interns, Residents, Palliative Care, Jordan, Cross-Sectional Study.

Knowledge And Attitude Of The General Public Toward Palliative Care In Jordan : A Cross-Sectional Study

Sadeen Eid¹, Ahmad Al-Tariffi², Khadr Mehdaw³, Mohammed Baker¹, Shaima'a Al-Jawarneh¹, Julia Al-Shayyab¹, Sara Al-Banna¹

ABSTRACT

BACKGROUND - Palliative care is a specialized care directed to relieve the symptoms of serious and life-threatening illnesses, and to address the physical, psychological, and spiritual aspects of these illnesses for the patients and their families. Despite its importance, it's usually provided lately in disease course in developing countries due to lack of awareness about its concept. Thus, depriving many patients from its benefits. This study aims to investigate knowledge and attitude of the Jordanian general public toward palliative care, and to determine the factors associated with that.

METHODS - 94 medical students in the clinical years, interns, and residents from several Jordanian universities and KAUH participated in this analytical cross-sectional study. The questionnaire was disseminated via Facebook, private messaging, therapeutic forums, and emails. We analyse the data through SPSS. Knowledge assessment was conducted using the Palliative Care Knowledge Test (PCKT), a 20-item tool with yes or no responses. Attitudes were assessed using the Frommelt Attitude Toward the Care of Dying - B (FATCOD-B), a 30-item tool utilizing a 5-point Likert scale. For the study, a shortened version of FATCOD-B, consisting of 9 items, was adopted.

RESULTS - The study included adult Jordanian individuals, either medical students in clinical years (4, 5, 6), physicians completing their internship, or residents completing their residency program in Jordan. Exclusions comprised medical students in basic years or those not regularly studying medicine in clinical years, along with individuals who didn't meet inclusion criteria or declined to give informed consent.

In our study, the frequencies of male participants were 40 and female participants were 54. The mean age of the participants was 22.21, and the median age was 22. Additionally, 84 participants

¹ Faculty of Medicine, Jordan University of Science and Technology

² Department of Pharmacology, Faculty of Medicine, Jordan University of Science and Technology.

³ Department of Rehabilitation, Faculty of Applied Medical Sciences, Jordan University of Science and Technology

reported that they had heard about palliative care (yes), while 10 participants indicated that they had not (no).

In general, the study sample exhibited an unfavorable attitude toward palliative care, with a mean score of 25.2 out of 45. Only 48 students (50.5%) demonstrated a moderate to favorable attitude toward palliative care, scoring above 26 in the total assessment. As for knowledge, the data revealed a lack of understanding, with a mean score of 10.62 out of 20. Merely 2.1% of students achieved the maximum score of 15 out of 20 in the knowledge assessment.

CONCLUSIONS - During the analysis of our study data, we observed inadequate knowledge and unfavorable attitudes among healthcare providers regarding palliative care. Although our sample size was limited, the results provide an insightful overview of this subject.

KEYWORDS - Knowledge, Attitude, Clinical Medical Students, Interns, Residents, Palliative Care, Jordan, Cross-Sectional Study.

Knowledge, Attitudes, and Awareness of Early Breast Cancer detection Among Female University Students, A Multicenter Cross-sectional Study Egypt, Jordan, and Syria

Aliaa Gama¹, Sara Adel Awwad², Waleed Alhayek³, Hagar Elgamal⁴, Sarah Saleh Omar⁵, Abdalfatah Abdalfatah⁶, Noura Waleed Koura⁷, Abdelrahman Sameh Soliman⁸, Abdelazeez Ahmed Masoud⁹, Obai Yousef¹⁰, Yasmeen Jamal Alabdallat¹¹

ABSTRACT

BACKGROUND - Breast cancer (BC) is a significant leading cause of death among women worldwide. It affects approximately 2.1 million women each year, which accounts for 25% of all cancers in women. The early detection of BC plays a pivotal role in the reduction of BC morbidity and mortality. Therefore, this study aimed to assess the level of knowledge, attitude, and awareness of early BC detection among female university students.

METHODS - We conducted a multi-national, multi-center cross-sectional study among a convenience sample of female undergraduate Arab medical students in three countries. A web-based questionnaire was distributed among the students in Arabic and English.

RESULTS - The total number of participants was 1361 (431 from Egypt (32%), 430 from Jordan (32%), and 500 from Syria (37%)). Almost half of the participants showed a poor level of knowledge regarding both BC risk factors and clinical features of BC (52.5%). The mean score for knowledge of early detection measures were 59.9% for Egypt, 69.2% for Jordan, and 75.2% for Syria, and for BSE knowledge and attitude, they were 16.4%, 17.4%, and 26.8% for Egypt, Jordan, and Syria respectively. Most students have heard about BSE (72.74%) and more than half knew the recommended frequency (62.12%). However, only 33.15% of students regularly performed BSE at least once every month. In addition, the most common reason for students not to perform BSE was that they did not know how to perform it (41.92%). The most predictive factor for the practice of BSE was having a family history of BC, and the least predictive factor was the knowledge level. Mammogram was the most known screening method among students (82%), and social media was the most common source for acquiring knowledge on BC and BSE (38%).

CONCLUSIONS - The study showed a lack of knowledge and awareness among students, which necessitates adequate educational intervention and training courses in the programs of the universities to improve the level of knowledge about BC and the practice of BSE.

KEY WORDS - BC, knowledge, awareness, attitude, university students

¹ Clinical Pharmacy Department, Faculty of Pharmacy, Deraya University, Minia, Egypt

² Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan

³ Tishreen University, Faculty of Medicine, Lattakia, Syria

⁴ Public Administration of Dental health, Health Affairs Directorate Alexandria, Egypt

⁵ Faculty of Medicine and Health Sciences, Aden University, Aden, Yemen

⁶ Faculty of Medicine, October 6 University, Egypt

⁷ Faculty of Medicine, Kafr El sheikh University, Kafr El Sheikh, Egypt

⁸ Faculty of Medicine, Alexandria University, Alexandria, Egypt

⁹ Faculty of Medicine, Alexandria University, Alexandria, Egypt

¹⁰ Faculty of Medicine, Tartous University, Syria

¹¹ Faculty of Medicine, Hashemite University, Zarqa, Jordan.

Knowledge, Attitudes, and Practices Towards Infertility Among Women Living in Jordan: A Cross-sectional Study

Kamel A. Jaber¹, Karam M. Albdour¹, Omar F. Ismail a, Yazan H. Jaber¹, Ahmad K. Younis¹, Amin I. Alsarar¹, Nadia A. Muhaidat²

ABSTRACT

BACKGROUND - Infertility is a common health issue worldwide. In Jordan, the burden of infertility is understudied, and the prevalence is likely underestimated. We aimed to assess the perceptions and level of awareness of Jordanian women concerning infertility and its health and social implications.

STUDY DESIGN - 429 women were invited to fill out an online questionnaire evaluating their knowledge of infertility, attitudes, and related perceptions. Inclusion criteria were living in Jordan and being above the age of 18. Descriptive statistics were used, and linear regression was conducted to screen for variables affecting participants' knowledge of infertility.

RESULTS - Knowledge of infertility was found to be inadequate among the study population (average knowledge score of 51.8%). Having a higher household income, carrying a healthcare-related degree, and previously visiting an infertility clinic were significantly associated with a higher knowledge score. Moreover, the diagnosis of infertility was reported by 13% of participants. The majority of the participants reported that infertility adds strain to marriage, and about 40% agreed that it is a valid reason for divorce. Furthermore, the majority preferred to discuss gynecologic and infertility-related issues and concerns with a female physician (57.8%, n=248). To add, almost all the respondents (94.4%, n=407) would first visit a gynecologist if they suffered from fertility issues.

CONCLUSIONS - In the setting of the lacking literature regarding infertility in Jordan, this study offers valuable insight into the knowledge, attitudes, and practices that are common among women residing in Jordan. Results from this study highlight negative trends in the help-seeking behavior of women, and gaps in infertility-related knowledge. This should prompt the adoption of educational programs as part of a nationwide approach addressing infertility and encouraging people to seek help when needed, emphasizing the role of primary healthcare in managing fertility issues. Official efforts are needed to collect data at a national level.

KEYWORDS - Knowledge, Perceptions, Infertility, Healthcare, Jordan, Women

¹ School of Medicine, The University of Jordan

² Department of Obstetrics & Gynecology, School of Medicine, The University of Jordan

Corresponding Author:
Kamel A. Jaber
Email: Kamel-jaber@hotmail.com, TEL:

Conflict of interest: No conflict of interest.

Mapping Cancer Care Services in Jordan for the Most Common Types of Cancer

Ahmad Salem, Uruk Shahin, Mohammad Abu Zahra

ABSTRACT

BACKGROUND - Cancer is considered the second most leading cause of death in Jordan following cardiovascular diseases, accounting for 15% of deaths by Non-Communicable Diseases (NCD). Therefore, it is considered a major health issue in Jordan. The purpose of this research is to spotlight on the weaknesses of the Jordanian health system regarding cancer care for common cancers in Jordan; for decisions makers to be able to identify the shortcuts and try to supply them to the different centers of cancer care.

METHODS - We summarized the standard treatment and diagnostic techniques provided by the National Institute for Health and Care Excellence (NICE) for the top five most common cancers in Jordan: lung, bladder, prostate, breast and colorectal cancers. Then, we designed an online questionnaire in which we asked about various medical interventions that must be available. After that, We sent this questionnaire to surgeons, medical oncologists, radiation oncologists and doctors from other specialties in the three health sectors we're covering (public, private and military), then we analyzed the data we collected.

RESULTS - The questionnaire was answered by a total of 16 doctors: 10 surgeons (5 private, 1 academic, 4 military) and 6 radiation oncologists (1 private, 2 governmental, 2 military), our preliminary data provides us valid results for breast and colorectal cancers. Regarding breast cancer diagnosis, we asked about the availability of MRI (91% available), stereotactic breast and sentinel lymph node biopsies (80%/90% available respectively), and molecular techniques to assess the receptor status of cancer cells (Estrogen, Progesterone, and HER2 (90% available), BRCA1 and BRCA2 (78% available). In terms of breast cancer treatment, we assessed the availability of Herceptin, reconstruction surgeries (91% avail-

able for both), cardiac sparing radiotherapy (55.5% available) and partial breast irradiation (64% available), in addition, one doctor stated the need for oncoplastic gene testing. As regards to colorectal cancer diagnosis, we inquired about the availability of PET-CT (69% available) and endoscopic techniques (100% available). While regarding treatment, we investigated the availability of endoscopic resection techniques (69% available), total mesorectal excision surgery, total neoadjuvant therapy (both 100% available), whether the latter is offered with watch and wait approach (43% available), microsatellite instability and mismatch repair testing (57% available), and if patients with limited metastasis are offered metastasis-directed therapy (87% available). As well as, a number of doctors reported the need for additional techniques to improve colorectal cancer care including: cytoreductive, hipec and robotic surgeries, MRI for staging of colorectal cancer and EUS.

CONCLUSIONS - While assessing the data we considered items with availability percentage of less than 70% to be deficient, meaning that, most of the diagnostic and treatment approaches required to manage breast cancer patients are available, except for techniques related to radiation: partial breast irradiation and cardiac sparing radiotherapy. However, regarding colorectal cancer, results were less promising, they showed shortcuts in most items including PET-CT, endoscopic resection techniques, microsatellite and mismatch repair tests as well as that most practitioners were not familiar with W&W approach, at the same time, other items scored 100% availability. We hope we'll be able to gain more responses in the soon future to be able to evaluate the accessibility and availability of cancer care services for other tumors in Jordan.

Mapping Opportunities and Unmet Needs: A Comprehensive Cross-sectional Survey of Medical Students in Jordanian Universities

Layth Muhammad Al-ramahi¹, Sami Osama Sami Alodeh¹, Waleed Hani Abdel Mu'ti Al-sarayra¹, Ayham Hussein², Mahmoud Bilal Mahmoud Al-ali³, Fanar Alsmarat⁴, Ahmed Salem⁵

ABSTRACT

BACKGROUND - There is a significant increase in the number of students joining medical colleges in Jordanian universities. There is an unmet need to quantify preferences of medical students towards specialization and medical residency choices and understand factors influencing these decisions. We aimed to determine the specialty of choice and the preferred country for specialization/medical residency among medical students across different academic years in Jordan medical colleges.

METHODS - This is a cross-sectional study administered via an online self-administered Google survey that distributed to medical students (confirmed via university email) among the six medical colleges currently operational in Jordanian universities. The survey included both open- and close-ended questions assessing their interest of specialization, factors influencing their choice, how their choice changed over the course of their academic education, their plans for residency abroad, and their perception of which specialties are over/under saturated.

RESULTS - 1,535 medical students took part in the survey. 99.7% of respondents (N=1,531) completed the survey ((1013 females (66%) and 518 males (36%)). Clinical years students (N=544, 35.5%) and basic years students (N=987, 64.5%). Students were from JU (N=114, 7.4%), JUST (N=339, 22.1%), HU (N=255, 16.6%), YU (N=311, 20.3), BAU (N=328, 21.4%), and MU (N=184, 12%).

1,195 (78%) of the students indicated their intention to complete their residency program abroad, with the USA being the most chosen country (N=370, 31%), followed by the UK (N=203, 17%) and Germany (N=168, 14%). The rest of the students (N=454, 29%) chose other countries (Canada, Qatar, Kuwait, and UAE).

The most common chosen residency program

¹ Hashemite University, Medical Student, Zarqa, Jordan

² Al-Balqa' Applied University, Medical Student, Salt, Jordan

³ M.D, Hashemite University, Zarqa, Jordan

⁴ Hashemite University, Research Assistant, Zarqa, Jordan

⁵ Hashemite University, Physiology, Anatomy and Biochemistry, Zarqa, Jordan

was surgical (N=501, 33%), internal medicine (N=286, 19%), pediatrics (N=103, 7%), dermatology (N=102, 7%) and neurology (N=60, 4%). The least chosen programs was ophthalmology (N=51, 4%), gynecology (N=48, 3%), orthopedic (N=44, 2.8%), psychiatry (N=29, 2%), ENT 1.2% (N=18, 1.2%), anesthesiology 1% (N=15, 1%), and family medicine 0.8% (N=13, 0.8%).

According to gender, the top three chosen specialties for females were: surgery (N=333, 33%), internal medicine (N=179, 18%), and pediatrics (N=80, 8%), and for males were: surgery (N=168, 32%), internal medicine (N=107, 21%) and dermatology (N=35, 7%). According to years, the top 3 chosen specialties for the basic year were: surgery (N=373, 38%), internal medicine (N=166, 17%), dermatology (62, 7%). For the clinical years: surgery 24% (N=128, 24%), internal medicine (N=120, 22%), and pediatrics (N=48, 9%).

More than half of the students (N=287, 54%) in the clinical years reported that they have changed their plans as they transitioned from the basic years (years 1-3) to clinical years. The most reported reasons for switching were the rotations (N=95, 33%), lifestyle (N=88, 30%), work hours (N=105, 36%), and salary (N=77, 26%).

CONCLUSIONS - The vast majority of medical students are planning to study abroad with surgery being the top-choice of specialization. A number of important specialties such as psychiatry, family medicine, and general practice were not preferred by the majority of student. More effort should be put in increasing current students' interest toward these specialties through a systemic change targeting the factors affecting these decisions to achieve a balanced healthcare system.

Navigating the Vasculitis Landscape: Insights into Diagnosis and Treatment Strategies

Ansam Baniamer¹, Hanen Batat^{1*}, Shima'a Allan¹, Mamoun Al-Salamah¹, Omran Hamadneh¹,
Anwar Al-Agha¹, Doaa Anwer¹, Nour Al huda Haitham¹

ABSTRACT

BACKGROUND - Vasculitis is a disease that is characterized by inflammation and damage to blood vessels neither the size of it causing damage to the wall of the blood vessel, which may lead to an aneurysm, rupture, ischemia, or death. Vasculitis can be caused by a number of different factors. be brought on by vasculitis. Stenosis is characterized by a narrowing of the lumen of a blood vessel. Vasculitis can bring on this illness. This inflammatory reaction may not always have a clear origin, and it has been linked with a wide variety of different health conditions that impact the skin as well as the body as a whole. Dermatopathologists classify vasculitis according on a variety of factors, such as the size of the vessels that were affected, the type of leukocytes that were discovered, and the existence of granulomas.

METHODS - During the course of our inquiry, we separated them into the following groups based on the size of their bodies: big (giant cell atherosclerosis, Takayasu arteries), medium (polyarteritis nodosa, Kawasaki and Buerger disease), and small (Wegener granulomatosis, microscopic polyangiitis) are the three different types of atherosclerosis. When it comes to afford dressing big vasculitis, polyarteritis nodosa, and small vessels vasculitis, corticosteroids plus immunosuppressant drugs were discovered to be a good option either sometimes the first choice treatment while among Kawasaki disease patients, the coronary artery aneurysm is the most worrisome consequence, and echocardiography should be conducted on all patients and should also be treated with intravenous immunoglobulin and aspirin, the Buerger illness as a result of the confusion surrounding the pathophysiology experts suspected that tobacco was one of the disease's primary causes; as a consequence, they concluded that quitting smoking should be the cornerstone of its therapy.

RESULTS - In conclusion, the purpose of this research was to provide a viewpoint on the most recent advancements that have been made in the treatment of vasculitis by focusing on the different facets that are associated with this subject. These include establishing the primary types of vasculitis based on the size of the vessels, as well as the causes for each type of vasculitis that has been found so far. Additionally, an expansion of the options for future research as well as the creation of treatment approaches that are the most successful are both being examined as potential next steps.

¹ Faculty of Medicine, Yarmouk University.
Irbid, Jordan

Pyoderma Gangrenosum, Acne, and Suppurative Hidradenitis (PASH) Syndrome: The First Case Report from Jordan

Abdullah Ghweiry¹, Abd-alraheem Abu-motawe¹, Waleed Alsatari¹, Osama Musallam¹, Anas Sheep¹, Hanan Al-Smadi²

ABSTRACT

BACKGROUND - Pyoderma gangrenosum, acne, and hidradenitis suppurativa (PASH) syndrome is a very rare auto-inflammatory disease that affects the skin primarily. The exact etiology and pathogenesis of PASH syndrome remain unknown. We report a case of this rare syndrome, which presentation shows the triad features of PASH syndrome. The patient came to the dermatology clinic complaining of severe recurrent painful ulcers and abscess formation with whitish discharge located on his lower back and groin area. Initial investigations indicated that there is an active inflammatory process. Finally, by the exclusion of other causes, the patient's history, dermatological examination findings, and further investigations showed that he had most of the PASH syndrome features. Treatment with Dapsone and Prednisone manage his complaint efficiently.

CASE PRESENTATION - Patient: Male, 35 years old ; Final Diagnosis: PASH syndrome; Symptoms: Recurrent painful skin ulcers; Medications: Prednisone , anti-tumor Necrosis factor, dapsone, cyclosporine ,clindamycin ; Clinical Procedure: N/A

CONCLUSIONS - In the management of PASH syndrome, we try to consider a variety of drug classes. In this case report, the biological treatment Adalimumab showed a poor effect on relieving the symptoms or decreasing the frequency of the flares, but using Prednisone with Dapsone showed significant improvement in the patient's complaint.

KEYWORDS - Pyoderma gangrenosum, Acne, Hidradenitis suppurativa, Ulcer, Case report, Jordan

¹ The School of Medicine, The Hashemite University, Jordan

² Assistant Professor, Department of Dermatology, Prince Hamza Hospital

Problem-Based Learning and Case-Based Learning Impact on Self-Efficacy, Self-Regulatory and Academic Performance For Basic Years Medical Students: An Interventional Study

Huda Baidoun¹, Zaid Al-Ghazawiq¹, Husein Abu-rumman¹, Yasir Haider Ali¹, Yahia Salem¹

ABSTRACT

BACKGROUND - PBL (Problem-Based Learning) is a student-centered teaching style that captured growing attention in undergraduate and postgraduate medical students and provide them more opportunities to acquire knowledge in such an up-to-date fashion. They are structured around clinical cases of the most common and important diseases. PBL is an educational method focused on self-directed learning in small groups discussion with facilitators. The CBL (Case Based Learning) is the dominant learning mode during the early years of the medical school in groups directed by tutors. The effectiveness of such an educational approaches is still up for debate. The objective is to evaluate the evidence concerning the effectiveness of such methodology in (non-clinical) undergraduate medical School at the university of Jordan. The particular interest is to evaluate different criteria such as regulated learning section scale (SRLP) scale, Self-efficacy for learning (SE) in addition to evaluate students GPA and class performance (Examination).

METHODS - Extra Teaching sessions were conducted for third year basic medical students in the university of Jordan. 123 students participated, they were divided into 3 main groups depending on teaching style, problem based learning, Case-based learning or Lecture based learning. Each main group was divided into subgroups of 6-8 members. We compared between groups using their exam marks (academic performance), Academic Self-Efficacy Scale (SE) and Academic Self-Regulatory Scale (SRLP) which has four sub-scales: Motivation and action to learning, Planning and goal setting, Strategies for learning and assessment, Lack of self-directedness.

RESULTS - Among 123 participants We found significant difference in self-efficacy scale between three groups, but no significant difference in self-regulation nor academic performance. Students in the PBL and CBL groups had higher satisfaction rate with their tutor compared to students in the LBL group. The SRLP subscales except for 'lack of self-directedness' were positively correlated with self-efficacy score.

CONCLUSIONS - Developing the traditional teaching styles for basic year medical students will give better academic and personal performance.

¹ School of Medicine, The University of Jordan, Amman, Jordan

Public Knowledge and Attitude towards Vitiligo: A Cross-Sectional Survey in Jordan

Rand Murshidi^{†1}, Buthaina Al-Sabri², Tala Khamis², Zahraa Alattar², Yasmin Al-Dawoud², Balqis Alfreijat², Nour Shewaikani^{†2*}, Assem Al Refaei², Mahmoud Abdallat³, Muayyad Murshidi⁴

ABSTRACT

BACKGROUND - Vitiligo is an autoimmune condition that affects around 2% of the global population, leading to both cosmetic concerns and psychological challenges in affected individuals due to societal stigma. This study, aimed to assess the knowledge and attitudes of Jordanians regarding vitiligo.

METHODS - Data collection was conducted through an online questionnaire comprising four sections: demographics, prior exposure, knowledge, and attitudes regarding vitiligo. Data analysis was performed using R and R Studio.

RESULTS - Out of the 994 participants surveyed, only 8.45% had limited knowledge about vitiligo, and 12.47% displayed a negative overall attitude. Factors independently associated with positive attitudes included a younger age (18-30), lower education levels (high school or below), having heard about or lived with a vitiligo patient, and higher knowledge scores. Notably, the most favorable attitudes were observed when individuals received information from healthcare professionals.

CONCLUSIONS - Despite a reasonable overall level of knowledge among the Jordanian public, some notable misconceptions persist. Additionally, greater knowledge was linked to more positive attitudes towards vitiligo patients. We recommend that future efforts focus on enhancing public understanding of the non-communicable nature of the disease and emphasize the importance of conveying medical information through qualified healthcare providers.

¹ Department of Dermatology, School of Medicine, The University of Jordan, Amman, Jordan.

² School of Medicine, The University of Jordan, Amman, Jordan

³ Department of Neurosurgery, Jordan University Hospital, Amman, Jordan

⁴ Department of Dermatology, The Jordanian Royal Medical Services, Amman, Jordan.

* Author to whom correspondence should be addressed.

† These authors contributed equally to the work.

Review of Prostate Cancer Practice in the Middle East and North Africa (MENA) Region

Anas Alrawashdeh¹, Raneem Ibrahim¹, Sami Khatib², Fanar Alsamarat³,
Khaled Alrawashdeh⁴, Ahmed Salem⁵

ABSTRACT

BACKGROUND - Prostate cancer is the second most common cancer and the fifth leading cause of cancer mortality in men worldwide. The standard diagnosis, staging and treatment for prostate cancer is established through randomized trials and international guidelines. The purpose of this study is to quantify current prostate cancer practices in the Middle East and North Africa (MENA).

METHODS - We sent a Google questionnaire to doctors in the MENA region to assess the methods used in prostate cancer investigation and treatment based on ESMO, NICE and NCCN guidelines for the diagnosis, staging and treatment of prostate cancer, and the availability of such modalities in the participant's practice

RESULTS - We received responses from 22 doctors: they work either in public hospitals (40.9%), private hospitals (22.7%) or academic hospitals (36.4%). The participants work as medical oncologists (40.9%), radiation oncologists (18.2%), clinical oncologists (13.6%), surgical oncologist (4.5%), family doctor (4.5%) and 4 of unknown specialties (18.2%). For initial diagnosis and staging of prostate cancer, 68.2% use multiparametric MRI and 90.9% use transrectal ultrasound guided biopsies. The use of bone scan to detect metastases in patients with intermediate- and high-risk prostate cancer was reported by 81.8% of respondents, the use of prostate specific membrane antigen (PSMA) PET as a routine staging modality was reported by 36.4% of respondents, while 28.6% of respondents use PSMA PET after equivocal findings from CT and/or bone scans. Regarding treatment of localized intermediate-risk prostate cancer, 59.1% offer radiotherapy ± androgen deprivation therapy (ADT), 18.2% offer radical prostatectomy (RP)

¹ Hashemite University, Medical Student, Zarqa, Jordan

² Radiation Oncologist, Afia Radiotherapy and Nuclear Medicine Center, Amman, Jordan

³ Research Assistant, Hashemite University, Zarqa, Jordan

⁴ Clinical oncology trainee, NHS, UK

⁵ Department of Physiology, Anatomy and Biochemistry, Faculty of Medicine, The Hashemite University, Zarqa, Jordan

± pelvic lymph node dissection (PLND), 9.1% offer either radiotherapy±ADT or RP±PLND, 9.1% offer options of radiotherapy±ADT, RP±PLND or ADT alone, and 4.5% offer radiotherapy±ADT in addition to brachytherapy. For localized high-risk prostate cancer, 40.9% offer radiotherapy with ADT, 27.3% offer radiotherapy, ADT and abiraterone/docetaxel, 9.1% offer RP±PLND, 9.1% offer RP±PLND or radiotherapy+ADT or radiotherapy+ADT+abiraterone/docetaxel, 4.5% offer radiotherapy+ADT or radiotherapy+ADT+abiraterone/docetaxel, 4.5% offer RP±PLND or ADT alone or radiotherapy+ADT, 4.5% offer radiotherapy+ADT or brachytherapy. 90.9% of respondents indicated they have access to radiotherapy, 20% to brachytherapy, 75% to advanced external beam radiotherapy techniques (VMAT, IMRT) and 18.2% to robotic prostatectomy (18.2%).

CONCLUSIONS - Our results demonstrated sub-optimal use of multiparametric MRI, inappropriate management of localized intermediate and high-risk prostate cancer in a minority of participants (e.g. using ADT alone which is against current guidelines). Furthermore, we found limited access to brachytherapy, robotic prostatectomy, and to a lesser extent advanced radiotherapy techniques.

Revolutionizing COVID-19 Diagnosis: Revealing CRISPR's Superiority over PCR – A Systematic Review

Ossama AbuSuailik, Moyad Alajarma, Majd Almitwali

ABSTRACT

BACKGROUND - The Covid-19 pandemic awakened the world for neglecting the medical world. Several innovative discoveries have followed this pandemic, paving the way to become better equipped to handle future global outbreaks. This is where CRISPR (short for “clustered regularly interspaced short palindromic repeats”), a genome editing tool, will reshape the profile of global diagnostic and healthcare systems. We currently lack a worldwide dependent diagnostic tool that can be utilized with complete reliability. While PCR (short for “Polymerase Chain Reaction”) was able to partially fulfill the need, the ingenious discovery of effectively manipulating the gene editing capabilities, for a diagnostic purpose, will overcome the several hurdles PCR was limited by. Thus, this study aims to compare the characteristics of CRISPR and PCR in Diagnosis of COVID-19.

METHODS - A qualitative analysis of several research articles from several sources was performed to gather the knowledge required to undergo a comparative analysis of both tools through multiple group meetings.

RESULTS - CRISPR, a newly discovered genome editing tool that can provide great value through behaving as a diagnostic tool that can ease the control of several pandemics, such as COVID-19. PCR, the currently used tool in the diagnosis of COVID-19, lacks in several areas such as prolonged diagnostic time, high costs, lower sensitivity, lower specificity, and fewer geographical availability, of which CRISPR was able to overcome. The handling of the COVID-19 pandemic has highlighted the huge lack in the area of knowledge of diagnostic tools that CRISPR can fulfil, thus portraying that its presence at that time, could have allowed for a greater grip on the dispersion of such pandemic globally. In addition, CRISPR excelling in its independence of skilled manpower and sophisticated instruments, further extending the gap between it and PCR.

CONCLUSIONS - This study confirms that CRISPR technology is a better substitute than PCR in the ability to manage the COVID-19 pandemic, due to its ability to overcome the challenges that limited the capabilities of PCR. These findings display that CRISPR will provide an opportunity for the medical field to become more prepared in handling future pandemics, thus surpassing a variety of boundaries in both general medical and future research fields. Due to CRISPR being recently discovered (SOURCE), with multiple unanswered questions, it is difficult to fully access the capabilities it contains, thus requiring future research projects to answer these questions.

Smoking Cessation Apps in Arabic Language: Content and Quality Analysis

Obada Khayyat¹, Mo'men Aldalal'ah¹, Hasan Khasawneh¹, Alameen Alsabbah¹,
Seif Almahadmeh¹, Ola Soudah²

ABSTRACT

OBJECTIVE - Mobile phone app usage to stop smoking rose significantly and showed an effective role to reduce dependence on nicotine. English language Cognitive behavioral therapy (CBT)-based apps proved their efficacy. However, no studies have been done to assess the content and the quality of apps available in the Arabic language. In this study we aim to collect and analyze the quality and the content of smoking cessation apps, that are available in Arabic language, focusing on CBT usage assessment and how it could be implemented in future apps.

METHODOLOGY - A systematic search of smoking cessation mobile apps was conducted in January 2023 using the Google Play search function at the google play store. The reviewers evaluated the applications' compliance with CBT by exploring their features and identifying those that use CBT techniques. The technical quality was assessed using App Quality Assessment Tool for health-Related apps (AQUA). Both 5A's and 5R's Models were used to assess the app's compliance with the Clinical Practice Guide for Treating Tobacco Use and Dependence.

RESULTS - 315 Relevant applications were found. Only 18 of them met our inclusion criteria. No app applied all the items in the 5A's and 5R's models. For the 5A's, there is no app applied all the items, while two of them didn't apply any of them. Regarding the 5R's, there is only one application uses the 5 items of 5 R's, and it's the only app used the Repetition item. Unfortunately, four of the identified apps didn't use any of the 5R's items. For the technical quality, The Total mean AQUA score for all reviewed apps was (2.92/5). The highest-scoring app scored 4.4/5 compared to the lowest-scoring app (2.1/5). The major weak domains were security, and user engagement (with mean scores of 1.9/5 and 2.3/5). Meanwhile, the strongest domains were usability with a score of 4.4/5. Regarding CBT, most of the app's features are not CBT-based. However, the reviewers identified 10 CBT-based features among all apps. The average number of CBT-based features on each app is 2.77. One app applied the highest number of identified features (7 out of 10).

CONCLUSION - No app ultimately complies with the Clinical Practice Guide for Treating Tobacco Use and Dependence or CBT. Developing CBT based app which follows the Guidelines with high technical quality is necessary to help smokers who have the will to quit and prefer using Arabic language apps.

¹ Department of Clinical Medical Sciences,
Faculty of Medicine, Yarmouk University

² Department of Basic Medical Sciences,
Faculty of Medicine, Yarmouk University

Suicide Trends in Jordan in Correlation With COVID-19 Pandemic: A Forensic Medicine Perspective

Shrouq Al-Sabaileh¹, Mohammad Abusamak^{2,3}, Hatim Jaber⁴, Ali Al-Buqour⁵, Husam Ahmad ALSalamat⁶, Radwan Shaher Sabayleh⁷, Hamzeh Hatamleh^{6*}, Mohammad Ghassab Deameh⁶, Rasmieh M. Al-Amer⁸

ABSTRACT

BACKGROUND - Suicide is defined as death arising from an act inflicted upon oneself with the intent to kill oneself. In the midst of the COVID-19 pandemic, rates among Jordanians have sharply risen, raising concerns about their well-being. While previous literature has reported a surge in suicide rates worldwide during the pandemic, the specific trends and factors impacting suicide cases in Jordan remain relatively unexplored. This study aims to shed light on the alarming increase in suicide cases among Jordanians before and during the COVID-19 pandemic, understanding the demographic patterns, common methods employed, and potential correlations with gender, age, and marital status. By investigating this critical topic from a forensic medicine perspective, we hope to fill information gaps and lay the groundwork for targeted mental health therapies in this difficult challenge.

METHODS - This retrospective autopsy-based study in Al-Balqa governorate investigates suicide trends from 2017 to 2022. Analyzing medico-legal autopsies at Al-Hussein hospital's forensic medicine department, we examine suicide methods, mental status, socioeconomic characteristics, and corroborate findings through various reports. Data sources include autopsy reports, medical files, and police investigator reports. Suicide notes, prior attempts, scene examinations, autopsy findings, and toxicological reports validate the chosen method. Statistical analysis involves means, standard deviations for continuous variables, and percentages for categorical variables. Correlations between binary variables are assessed using chi-square tests in this observational study on suicide trends and correlates in Al-Balqa.

¹ Community, Pathology, and Forensic Medicine, Al-Balqa Applied University, Al-Salt, Jordan

² General and Special Surgery, Al-Balqa Applied University, Al-Salt, Jordan

³ Ophthalmology, Amman Eye Clinic, Amman, Jordan

⁴ Epidemiology and Public Health, Al-Balqa Applied University, Al-Salt, Jordan

⁵ Forensic Medicine, Ministry of Health Al-Hussein/Salt New Hospital, Al-Salt, Jordan

⁶ Internal Medicine, Al-Balqa Applied University, Al-Salt, Jordan

⁷ Internal Medicine, Cairo University, Cairo, Egypt

⁸ Nursing, Isra University, Amman, Jordan

RESULTS - A total of 731 reported medico-legal autopsies were reviewed, and 41 cases of suicide were included. The study indicated that 75% of the subjects committed suicide during the COVID-19 pandemic period, of whom 13% were children. The average age of those who died by suicide was 32.1 ± 12.2 years. Overall, 58.5% were single, 61.0% unemployed, and 53.7% had a mental illness. Males were four times more likely to commit suicide than females. Hanging represented 60.61% of all male suicides, followed by firearms (27.27%); however, females used poisoning. The study identified a statistically significant association between suicide in relation to COVID-19 and gender (p -value <0.001), age (p -value $=0.002$), and the method of suicide (p -value <0.001).

CONCLUSIONS - Our study highlights a significant increase in suicide rates among Jordanians during the COVID-19 pandemic. Urgent targeted mental health interventions are needed to address social isolation, economic pressures, and mental health repercussions. Policymakers and healthcare professionals need to collaborate on culturally sensitive strategies to prioritize mental health and community connections, reducing the pandemic's impact and suicide risk. Further research is needed.

This research was published: <https://doi.org/10.7759/cureus.42636>

The Conundrum of Using Extracorporeal Membrane Oxygenation for Traumatic Brain Injury Patients

Assim A. Telfah¹, Zaid Ayman Kandah¹, Lujain Obidat¹

ABSTRACT

BACKGROUND - Extracorporeal membrane oxygenation (ECMO) is a lifesaving technique for patients with cardio and/or pulmonary dysfunction. It aids in the healing of injured hearts and/or lungs by managing organ loads. Two types of ECMO exist: Venovenous and Venoarterial, each with distinct applications. ECMO is particularly beneficial for patients with Acute Respiratory Distress Syndrome (ARDS). However, ARDS can complicate Traumatic Brain Injury (TBI) in up to 20% of cases, presenting challenges for ECMO usage in such patients. The systemic anticoagulants used in ECMO can increase the risk of intracranial bleeding, and withholding them may lead to thrombus formation, worsening the patient's health. Consequently, ECMO is generally contraindicated in patients with TBI.

METHODS - In this systematic review, we searched PubMed using various terms related to ECMO and Traumatic Brain Injury, resulting in 71 articles. After exporting them to Microsoft Excel, we applied our exclusion criteria, which involved removing review articles, systematic reviews, studies involving animals, non-English studies, inaccessible studies, and irrelevant studies. Our focus was on including only patients who underwent ECMO and were diagnosed with TBI. We thoroughly analyzed the included studies, documenting their study design, sample size, and extracting relevant variables for each patient.

RESULTS - After analyzing 71 PubMed articles, we selected 12 for our study: 8 case reports (11), 1 case-control study (46), 1 retrospective review (13), and 2 retrospective analyses (20). The total sample consisted of 90 patients, mostly men, with around 70% under 60 years old (majority in late 20s to early 30s). Among them, 48 patients required brain operations, and the mortality rate was 45.8% (a patient was mentioned to have

¹ Department of Basic Medical Sciences, Faculty of Medicine, Yarmouk University, Irbid-Jordan

received heparin and survived). Complications included hemorrhages (2-cannula site, 1-trauma site, 2-epistaxis), 4 circuit thrombosis, 1 oxygenator thrombosis, and 3 pressure sores. Venovenous ECMO was commonly used (Venoarterial ECMO in only 2 studies). 5 case report patients and 4 retro-review patients were not administered anticoagulants. Overall, 37 patients died due to multi-system organ failure, hemorrhages, life support cessation, and neurological criteria.

CONCLUSIONS - The mortality rates were high, leading to debates about ECMO's administration to severe cases as a last resort. This raises questions about its efficacy since it can be both beneficial and harmful. Some studies suggest that ECMO offers hope in severe cases, while others emphasize potential risks. Several reviewed studies propose techniques to mitigate adverse effects in TBI patients, such as increasing ECMO flow, withholding anticoagulants to reduce thrombus formation and intracranial hemorrhage risk, or initiating ECMO after 48 hours of stable hemorrhage with low-dose heparin, with strict patient monitoring can decrease the likelihood of complications. Despite unanswered questions and limited research, completely rejecting ECMO for TBI patients warrants reassessment. A tailored protocol for each patient may emerge with time and further study.

The Effects of Disrupted Sleep on Depression Among Medical Students During the COVID-19 Pandemic

Mohammad K. Balaw^{1,6}, Barjas F. Al-Khozoz¹, Sajeda H. Abdallah¹, Abdallah A. Mubaidin¹, Ahmad W. Joudeh¹, Saif Al-deen T. Al-zaqeeba¹, Nabil M. Ardah², Ashraf Khasawneh³, Tareq Saleh⁴, Zuheir Hasan⁵

ABSTRACT

OBJECTIVE - The objective of the study is to investigate the connection between sleep disruption and depression in medical students, during the COVID-19 pandemic.

METHODS - This cross-sectional study, surveyed 428 medical students from various universities in Jordan, during January 2022. We used the PHQ9 and the PSQI to measure depression symptoms and sleep quality, respectively.

RESULTS - Of the 428 students, 262 (61.2%) were provisionally depressed and 166 (38.8%) were not. Depressed students had a statistically significant higher percentage of females (63.7% vs. 52.4%, $p = 0.02$). They were also more likely to be from higher academic years ($p < 0.001$). Most of the other demographic characteristics were similar between depressed and non-depressed students ($p > 0.05$). According to the PSQI, 252 (58.9%) of students had disrupted sleep and 147 (34.3%) did not. As for students with sleep disruption, they were more likely to be smokers (22.2% vs. 9.5%, $p < 0.001$) in comparison with those who do not have sleep disruption. We have found that 77.0% of depressed students have a sleep disruption in comparison with non-depressed students (41.3%), with a statistically significant effect ($p < 0.001$). Pearson's correlation has found a direct relationship between the PHQ9 and the PSQI scores ($R = 0.51$, $p < 0.001$).

CONCLUSIONS - Results showed a significant correlation between sleep disruption and depression in medical students. More studies should discover the factors that affect sleep disruption and depression in the COVID-19 era.

KEYWORDS - Depression, Sleep quality, Medical Students, COVID-19

¹ College of Medicine, Hashemite University, Al-Zarqa, Jordan

² School of Medicine, Mutah University, Al-Karak, Jordan

³ Department of Microbiology, Pathology, and Forensic Medicine, Hashemite University, Al-Zarqa, Jordan

⁴ Department of Pharmacology and Public Health, Hashemite University, Al-Zarqa, Jordan

⁵ Department of Anatomy, physiology and biochemistry, College of Medicine, Hashemite University, Al-Zarqa, Jordan

⁶ Department of Special Surgery, Mutah University

Corresponding Author:

Mohammad K. Balaw

mohammad.balawy13@gmail.com

The Efficacy and Safety of the Sphingosine-1-Phosphate Receptor Agonist Fingolimod in Cerebrovascular Stroke: A Systematic Review and Meta-analysis

Ahmed Aljabali¹, Mariam Abdelhady², Mohamed khadr Altal¹, Ahmed Negida^{3,4},
Majed Mohammad Masadeh⁵, Nasr Salieba Alrabadi⁵

ABSTRACT

INTRODUCTION - Stroke is a leading cause of morbidity and mortality worldwide, with limited effective treatment options. Fingolimod has been shown to have neuroprotective effects in previous studies and has been approved for use in multiple sclerosis. This systematic review aims to evaluate the current evidence regarding the efficacy of Fingolimod in cerebrovascular stroke.

METHODS - A comprehensive literature search was conducted using electronic databases (PubMed, Scopus, Cochrane Library, and Web of Science) for studies published up to January 2023. Studies were included if they evaluated the efficacy of Fingolimod in subjects with cerebrovascular stroke and reported outcomes.

RESULTS - This meta-analysis included six studies with a total of 251 patients, 124 in the fingolimod group and 127 in the control group. Fingolimod was associated with significant improvements in NIHSS scores on days 7, 14, 30, and 90 post-stroke, with the greatest improvement seen after one month (MD = -7.1, 95% CI [-9.73, -4.65], $P < 0.00001$). Additionally, fingolimod was associated with significant reductions in mRS scores after three months (MD = 7.3, 95% CI [3.06, 17.40], $P < 0.00001$) and significant improvements in Modified Barthel Index scores on days 7, 14, 30, and 90 post-stroke. After three months, the mean difference in Modified Barthel Index scores was 14.6 (95% CI [5.80, 23.36], $P = 0.0005$). Fingolimod was also associated with significant reductions in microvascular permeability ratio (rT%) and infarct volume (MD = -15.2, 95% CI [-23.33, -7.15], $P < 0.00001$).

CONCLUSIONS - The current evidence suggests that Fingolimod may have potential as a neuroprotective agent in cerebrovascular stroke. However, more high-quality clinical trials are warranted.

¹ Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan

² Faculty of Medicine, October 6 University, Giza, Egypt.

³ Department of Global Health and Social Medicine, Harvard Medical School, Boston, USA

⁴ Department of Neurology, Virginia Commonwealth University, Richmond, VA, USA

⁵ Department of Pharmacology, Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan

Lived Experience of Young Adults with Epilepsy in Jordan: A Qualitative Inquiry

Al-Saddi, Z.¹, Nazzal, M.^{2*}, Al-Saddi, R.², Al-Samman, L.² & Yasin, A.¹

ABSTRACT

BACKGROUND - Epilepsy is a chronic neurological disorder characterized by unprovoked seizures that result from an imbalance and out-of-pattern electrical functioning activity in the brain. A seizure can be described as an atypical behavior of involuntary and uncontrolled jerking movements, stiffening of the arms and legs, and a loss of orientation, coordination, and awareness. Typically, these seizures last from a few seconds to a few minutes. Unfortunately, epilepsy can affect people of all ages and significantly impact various aspects of their lives..

PURPOSE - The aim of this study is to highlight the personal narratives of young adults with epilepsy, uncover the daily obstacles and challenges they encounter, and explore the issues linked to society, stigma, medical adequacy, and the psychological aspect.

METHODS - A phenomenological qualitative design was used. Individuals aged >18 with a confirmed diagnosis of epilepsy by a neurologist gave informed consent for the interview. A face-to-face interview was conducted with each participant using a semi-structured question guide. The interviews were conducted in Arabic, audiotaped, and then transcribed into a written format. After that, the data were analyzed using open coding line by line to achieve the aimed content and thematic analysis.

RESULTS - The participants of this study have revealed several challenges and adaptations through their lived experiences with epilepsy. Some of the challenges they faced included emotional struggles, mental fatigue, injuries inflicted during a seizure, post-seizure physical fatigue, dealing with an unsupportive medical system, medication side effects, financial burden as well as social stigma. Furthermore, establishing and maintaining routines through medication compliance, organizing a fixed sleep schedule, dietary control, accepting the disease by controlling one's emotions and reactions, receiving family support, increasing spirituality, engaging in productive occupations as a distraction, and environmental modifications (lower noises, reduce exposure to flash lighting) have all been proven to help them adapt and accept the disease.

CONCLUSIONS - Each individual with epilepsy has a different experience with their seizures. Therefore, it is essential for healthcare professionals to be fully aware of them and understand how these individuals decide to manage their condition. In the end, it is recommended for healthcare professionals and patients themselves to collaborate in developing strategies that help overcome the challenges they face and improve treatment outcomes. This can be achieved by individualizing each treatment plan and tailoring it to the patient's needs.

¹ Faculty of Medicine, Jordan University of Science & Technology, Irbid, Jordan

² Faculty of Applied Medical Sciences, Jordan University of Science & Technology, Irbid, Jordan

Corresponding Author:
Mohammad S. Nazzal, PhD, OTR
Email: msnazzal@just.edu.jo

The Relationship Between Parathyroid Hormone-Related Protein Level and Hypercalcemia in Renal Cell Carcinoma Patients: A Narrative Review

Mohammad Alqudah¹, Mo'men Aldalal'ah¹, Hasan Khasawneh¹, Omar El-shatel¹, Fakhri Malkawi¹, Seif almakhadmeh¹

ABSTRACT

BACKGROUND - Renal cell carcinoma (RCC) and other malignancies produce parathyroid hormone-related peptide (PTHrP), causing hypercalcemia and associated complications. Mice studies linked hypercalcemia in renal cell carcinoma to reduced tubercle bone volume and elevated parathyroid hormone-related protein. Around 17% of renal cell carcinoma cases experience hypercalcemia. Diagnosis involves laboratory testing (serum calcium, PTH, PTHrP) and radiological imaging (CT scan). This review will summarize PTHrP's diagnosis and prognostic significance, its role in hypercalcemia, and associated bone complications in RCC. .

METHODS - Searching for relevant articles was done using PubMed. Studies had to be published in full-text in English to be considered.

RESULTS - There are four main types of hypercalcemia in malignancy, with malignant humoral hypercalcemia being the most common. It occurs due to the production of Parathyroid hormone-related protein (PTHrP) by malignant cells. Renal cell carcinoma bone metastasis is predominantly osteolytic, driven by factors that stimulate osteoclastogenesis and bone resorption. High levels of calcium can suppress the synthesis of active vitamin D, which impairs calcium absorption and results in bone loss. PTHrP expression in RCC has diagnostic and therapeutic implications and may serve as a biomarker and therapeutic target. Management involves treating the underlying malignancy and controlling hypercalcemia using drugs like vitamin D, bisphosphonates, denosumab, and PTHrP antibodies. Vitamin D plays a role in fracture prevention and improved prognosis. Bisphosphonate therapy is controversial but can prevent bone complications. Denosumab replicates the effects of osteoprotegerin leading to osteoclastogenesis inhibition. Parathyroid hormone-related peptide monoclonal antibodies show promise in treating hypercalcemia of malignancy.

CONCLUSIONS - Understanding the mechanisms and implications of hypercalcemia in RCC provides valuable insights for its diagnosis, treatment and management, thereby enhancing the care and outcomes for patients affected by this condition. Limitations and needs for future research are still needed.

¹ Department of Clinical Medical Sciences, Faculty of Medicine, Yarmouk University

The Role of Keto Diet as an Adjuvant Therapy for Cancer Patients: Literature Review

Amneh Sa'ad, Umniah Jaradat

ABSTRACT

BACKGROUND - Cancer has always been a significant cause of death worldwide, and despite advancements in the medical field, the treatment options have remained relatively stagnant over the past few decades. However, some physicians have been exploring alternative approaches, such as the ketogenic diet, as a potential adjuvant therapy for certain cancer cases. Interestingly, the ketogenic diet was initially used in 1921 as a strategy to treat epilepsy, and prior to the discovery of insulin, it was even used to manage diabetes. Nowadays, the ketogenic diet is primarily known as a weight loss method, characterized by a low carbohydrate, high fat, and moderate protein intake, which effectively induces a state of ketosis in the body. This metabolic state, resembling a fasting state, has sparked interest in its potential role in cancer treatment.

METHODS - This literature review is based on several research papers we found in PubMed. We highlighted key points to understand how the ketogenic diet and the induced state of ketosis can potentially limit cancer growth. We also explore which cancer cases may have the most beneficial effects when applying keto as a treatment method.

RESULTS - Recent studies suggest that keto diet may be used as an effective adjuvant remedy for treating some cancer cases as it might have anticancer properties by decelerating and limiting their growth using several different mechanisms as inhibiting insulin signals and other that will be discussed in this review. Although the keto diet can be salutary for some cancer cases, it may not be applicable or effective for everyone, as it was set up that its substantially effective in CNS tumors as glioblastoma and other types as breast cancer due to its association with estrogen blood levels and keto diet ability to maintain its levels in the blood, also other good effects have been noticed on colonic cancer cases as keto diet capability to reduce stress that consider as a threat factor for colonic cancer.

CONCLUSIONS - This review aims to elucidate the efficacy and sustainability of the ketogenic diet as an adjuvant therapy for cancer cases. However, further research is warranted to gain a comprehensive understanding of its long-term effects and contraindications.

KEY WORDS - Keto diet, ketosis, anticancer effect, treatment, adjuvant therapy, breast cancer, glioblastoma colonic cancer, Estrogen, fasting, low carbohydrate

Through the Eyes of Medical Students: How Their Attitudes towards Ocular discomfort Can Make or Break Academic Success

Hala Faour¹, Ansam Baniamer¹, Jihad Feras ALSamhour², Hanan Batat¹, Shahed ALmefleh¹, Alina Haddad¹, Abdalkareem Amawi¹, Abdallah Ahmad¹, Tuqa Yousef¹, Dr.Rami Alomari

ABSTRACT

BACKGROUND - One of the primary medical challenges that students face during their academic years is the discomfort and strain associated with their eyes, which were affecting their academic performance. In our research we aim to evaluate the effect of long hours studying at night along with using electrical devices as a tool for studying eye strain.

METHODS - This cross-sectional study was conducted at six Jordanian universities within their respective faculties of medicine, during the period between September 2022 and February 2023. Four hundred forty-five (445) medical students of age (19-25) years from first-year to sixth- year students, filled out the survey. The number of female participants reached 261 (58.7%), and males reached 184 (41.3%). A chi-square test was conducted to assess the association between demographic and responders' ophthalmological history from one side and the impact on study performance from another side.

RESULTS - Many students reported that night studying had affected their eyes. Around two-thirds of students considered eye strain a big problem in their daily life and an obstacle preventing their academic success. Furthermore, (36.9%) of students reported that eye strain impacted their academic performance. Students who were previously diagnosed with eye strain were five times more likely to have negative impact on their academic performance. (OR=5.46; p<0.001). While participants who had previous eye injuries were twice as likely to have their study and academic performance impacted (OR=2.64; p<0.001). Eventually, responders who received medical treatment and care were almost three times less likely to be impacted (OR=2.77; pvalue<0.001).

CONCLUSIONS - The study highlights the actual effect of eye strain students' academic performance and the importance of regular ophthalmologist consultation and medical treatment in preventing fluctuations in medical student's academic performance

¹ Faculty of Medicine, Yarmouk University, Irbid, Jordan

² Faculty of Medicine, University of Jordan, Amman, Jordan.

Tibia Plafond Horizontal Orientation Angle for Ankle Joint Alignment in the Coronal Plane

Mohammad Ali Alshrouf¹, Marc-Daniel Ahrend², Christian Konrads^{2,3,4}

ABSTRACT

BACKGROUND - Knee osteotomies redistribute the joint reaction forces within and around the knee joint to treat degenerative knee disease and other knee conditions. This can lead to a considerable alteration in coronal limb alignment; therefore, preoperative imaging is needed to construct osteotomies, and in cases of postoperative ankle pain, ankle orientation should be measured to restore neutral alignment. This research examined whether the Tibia Plafond Horizontal Orientation Angle (TPHA) accurately describes distal tibial ankle alignment in the coronal plane.

METHODS - This retrospective analysis over a period of five years, from 2017 to 2021, at a tertiary care teaching university hospital included individuals who underwent supracondylar rotational osteotomies to address femoral torsion. On a standing x-ray taken before and after surgery, with both knees facing forward, the Mechanical Lateral Distal Tibia Angle (mLDTA), Mechanical Malleolar Angle (mMA), Malleolar Horizontal Orientation Angle (MHA), TPHA, and Tibio Talar Tilt Angle (TTTA) were all measured. A Wilcoxon signed rank test was used for comparison between means, and Pearson correlation was used to assess the degree of correlation between the change in TPHA and MHA.

RESULTS - The mean age of the 146 patients in the research was 51.47 ± 11.87 years. 54 (37.0%) women and 92 (63.0%) men were included. There was a significant decrease postoperatively in MHA ($14.0^\circ \pm 5.32^\circ$ to $10.59^\circ \pm 3.93^\circ$, $p < 0.001$) and TPHA ($4.88^\circ \pm 4.07^\circ$ to $3.82 \pm 3.10^\circ$, $p = 0.013$). There was a significant correlation between the change in TPHA and the change in MHA ($r = 0.185$, CI 0.023–0.337; $p = 0.025$). No significant change pre- and postoperatively was found between the measurements of mLDTA, mMA, or TTTA.

CONCLUSIONS - The TPHA was found to be a reliable tool for determining distal tibial ankle alignment in the frontal plane, and it may be used in conjunction with other measures to plan lower extremity osteotomies.

KEY WORDS - osteotomy, ankle, realignment, coronal alignment, preoperative planning.

¹ The School of Medicine, The University of Jordan, Jordan

² Department of Trauma and Reconstructive Surgery, BG Klinik, University of Tuebingen, Tuebingen, Germany

³ Department of Orthopaedic Surgery, University Hospital Tuebingen, University of Tuebingen, Tuebingen, Germany

⁴ Department of Orthopaedics and Traumatology, Hanseatic Hospital Stralsund, Stralsund, Germany

Understanding the Diagnostic and Therapeutic Landscape of Inherited Clotting Disorders

Ansam Baniamer¹, Mohammad Al-Faqeh¹, Shama Alshtawi¹, Sadeen Yaseen¹, Rand Mahdi¹, Hala Al Omoush¹.

ABSTRACT

BACKGROUND - There is a set of hereditary illnesses that interfere with normal blood clotting called inherited clotting disorders. These ailments are also known as inherited bleeding disorders or inherited thrombotic disorders. Mutations in genes that code for blood coagulation factors or other regulatory proteins can lead to these conditions. These conditions affect the body's ability to control bleeding and/or clotting, respectively, and can be caused by a variety of genetic alterations. Haemophilia A and B, which are linked to deficits in clotting factors VIII and IX, are two of the most common hereditary clotting diseases. Deficiency or malfunction of von Willebrand factor, a protein necessary for clotting, is the hallmark of von Willebrand disease, another prevalent condition. An elevated risk of blood clots is associated with the Factor V Leiden mutation. The incidence of hereditary coagulation diseases varies considerably among regions and subpopulations. It is estimated that between 5,000 and 10,000 males are born with haemophilia A or B every year. While just around 1% of the world's population has it, von Willebrand disease is far more common.

METHODS - This overview discusses inherited clotting illnesses, including their prevalence and the implications these diseases have on the individuals and families who are affected by them. Additionally, modern diagnostic procedures, alternative treatment options, and recent developments in illness management are included in this research. This review provides a summary of the data in an effort to improve the diagnosis, treatment, and outcomes for patients suffering from genetic clotting problems.

CONCLUSIONS - In conclusion, hereditary coagulation diseases influence blood clotting in a variety of ways. These illnesses vary globally, with some being more common in certain groups. Patients with clotting factor deficits may benefit from clotting factor replacement therapy, desmopressin, and other drugs in the management of bleeding episodes and the prevention of excessive bleeding. Awareness, early discovery, and availability to proper medical care have greatly improved hereditary clotting problem management and quality of life. Research, genetic screening, and therapeutic advances are essential to tackling these illnesses and improving outcomes for afflicted people worldwide.

¹ Faculty of Medicine, Yarmouk University, Irbid, Jordan

Unmasking the Impact of Depression on the Fate of Colorectal Cancer Patients: A Systematic Review and Meta-analysis

Hanen Batat¹, Mohammad Alsharqwi¹, Abdelrahman Abu Sahyoun¹, Jihad Feras AlSamhori², Ansam Baniamer¹, Yazan Ibrahim³, Abdalrhman Hamasha¹, Mariam Al-Omari¹

ABSTRACT

BACKGROUND - To enhance the prognosis and overall survival of colorectal cancer patients, it is crucial to identify the risk factors that contribute to colorectal cancer-related mortality. There is still no comprehensive meta-analysis that declares the correlation between depression and colorectal cancer mortality, which is the aim of our study.

METHODS - This is a systematic review and meta-analysis of a group of observational studies from Scopus and PubMed after using MeSH standardization and the related keywords to our topic from inception to the end of December 2022. There were 5962 references found, and only six cohort studies were included according to the inclusion criteria if they were cohort studies, investigations with colorectal cancer patients despite their cancer stage, diagnosed depression by self-report scales or standard diagnosis scales, and studies including RR or HR with 95% CI for mortality. Our primary outcome was all-cause mortality. We estimated the link between depression and all-cause mortality using random effect models. We also carried out a sensitivity analysis to demonstrate a leave-one-out meta-analysis in which estimates are presented when omitting one study at a time due to high heterogeneity. Also, because of the small amount of research on depression, funnel plots and counter-enhanced funnel plots only managed to generate depression as the primary outcome.

RESULTS - There were a total of 6906 colorectal cancer patients participating in the study, and the studies ranged from 15 to 2,396 participants. From 6 months to 28 years, the period of follow-up varied. Four of these studies originated in the United States, one in Italy, and the last one in the Netherlands. The results indicate that depression is associated with a 58% increase in

¹ Faculty of Medicine, Yarmouk University, Irbid, Jordan

² Faculty of Medicine, University of Jordan, Amman, Jordan.

³ Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan

the rate of death from all causes. Subanalysis was performed according to the time of depression assessment, duration of follow-up, and method of mental status management. When depression was evaluated following a colon cancer diagnosis, it had a greater influence on all-cause death. (HR = 1.76, 95% CI: 1.27–2.25) rather than when it was assessed before the diagnosis (HR = 1.05, 95% CI: 0.88–1.22). And studies with a follow-up duration of fewer than 10 years tended to have higher all-cause mortality (HR = 2.09, 95% CI: 1.91–2.26) than those with a follow-up duration of more than 10 years (HR = 1.15, 95% CI: 0.92–1.37). Finally, patients who were assessed through standardized clinical interviews had a higher impact on all-cause mortality (HR = 2.10, 95% CI: 1.92–2.28) in comparison to those who were assessed by self-report scales (HR = 1.25, 95% CI: 0.95–1.54).

CONCLUSIONS - Depression is significantly associated with increases in all-cause mortality in colorectal cancer patients. This effect is more obvious in patients who are following up duration less than 10 years, who are depressed after the diagnosis, and diagnosed through a standardized clinical tool in the other hand there was no any significant association with Cancer-specific mortality Further management of colorectal cancer should include the presence of ordinary psychotherapy sessions to optimize survival outcomes

KEYWORDS - colorectal cancer, depression, All-causes mortality, cancer-specific mortality.

Use of Isotretinoin and the Risk of Depression in Young Adult Females with Acne Vulgaris

Nora AlKhateeb¹, Hasan A. Khasawneh¹, Khalil Kraicheh², Sara Najeh¹, Sarah AlSeid¹, Shahd Alomari¹, Dana Aleassa¹, Fakhri Malkawi¹, Firas AlQarqaz²

ABSTRACT

BACKGROUND - Acne is a prevalent skin disorder, and isotretinoin is the most effective treatment. There is considerable controversy regarding the possible link between isotretinoin (ITT) treatment and depression among acne vulgaris patients. This study aims to evaluate the impact of ITT treatment on depression levels among young adult females with acne vulgaris and to explore associated factors.

METHODS - In this cross-sectional study, young adult females with acne vulgaris receiving ITT treatment were compared to those using alternative therapies. Data collection involved a structured questionnaire that included sociodemographic details and assessed acne characteristics, such as severity based on the PGA scale, location, skin type according to the Fitzpatrick scale, scarring, and post-inflammatory pigmentation. Dermatology-related quality of life was measured with the DLQI scale, and depression was evaluated using the PHQ-9 scale. Statistical analysis included descriptive statistics and multivariate analysis to identify factors associated with depression levels.

RESULTS - A total of 417 females participated in the current study, of which 313 were treated with ITT, and 147 were treated with other treatments. Patients formerly treated with ITT or had a family history of depression were excluded from the study. The median age for all participants was 21 years old. The primary outcome of this study, comparing PHQ-9 scale scores between the ITT and control groups, revealed no significant differences ($U = 14905$, $z = -0.724$, $p = 0.469$, $r = 0.035$). In a secondary analysis using a General Linear Model, factors including acne severity grade, DLQI, distribution of acne, scarring, and post-inflammatory pigmentation were found to be associated with depression levels ($F(7, 72) = 1.791$, $p = 0.001$, $\eta^2 = 0.076$).

CONCLUSIONS - This study did not identify significant differences in depression scores between ITT and control groups in young adult female patients. However, factors such as acne severity, DLQI, distribution of acne, scarring, and post-inflammatory pigmentation were associated with depression in this population. Further research, including longitudinal studies, is needed to explore the complex relationship between acne, its treatments, and depression in different populations, ultimately guiding acne management practices.

¹ Faculty of Medicine, Yarmouk University, Irbid, Jordan

² Department of Dermatology, Jordan University of Science and Technology, Irbid, Jordan

Vitamin D Serum Levels and Age-Related Macular Degeneration (AMD): A Systematic Review & Meta-Analysis

Samia Aziz Sulaiman¹, Nilofar Vora², Quader Naseer³, Abdul Basit Sangah⁴, Hassan Mumtaz⁵, Omar Rateb Calife Majali⁶, Shazia Saleem Shaikh⁴, Uday Sankar Akash Vankayala⁷, Subahana Musquan Shaik⁸, Afshar Alam⁹, Iqra Hoor¹⁰, Muhammad Zain Khalid⁴

ABSTRACT

BACKGROUND - Age-related macular degeneration (AMD) is described as a chronic illness which primarily affects the retina and hence results in central vision impairment. Recently, studies have exhibited the promising potential vitamin D holds in inhibiting the pathogenesis of AMD, preserving retinal tissue homeostasis, as well as limiting neovascularization, and therefore improving the outcomes of AMD patients.

METHODS - The systematic review and meta-analysis were conducted following PRISMA guidelines. Four databases, namely, ISI Web of Science, PubMed, Scopus, and Cochrane, were utilized for the comprehensive search. Relevant MeSH and Boolean operator combinations were employed alongside relevant keywords for the identification of relevant studies. Subsequently, database results were imported for screening and data extraction was conducted according to the inclusion criteria which was set based on the Population, Intervention, Comparator Group, Outcome, and Study design (PICOS) intervention. Two meta-analyses were conducted using RevMan software. Significant differences between the vitamin D serum levels amongst the classified AMD patients and the non-AMD group while the OR values pertaining to the association vitamin D deficiency and early and late AMD were explored through the first and second meta-analyses, respectively.

RESULTS - Fourteen studies adhered to the inclusion criteria and were therefore included. The findings of our review consistently demonstrate that there were lower vitamin D serum levels amongst AMD patients. Meta-analysis demonstrated a statistically significant overall association between low serum vitamin D levels and AMD ($p = 0.0001$). Nevertheless, detailed examination of the data across distinct subgroups indicated that these relationships were not statistically significant.

CONCLUSIONS - This current review emphasizes the crucial need for meticulous exploration into the intricate mechanisms of vitamin D in the context of AMD, deemed an avenue for understanding, preventing, and managing the condition. Future thorough analysis of vitamin D's implications could potentially pave the way for unveiling groundbreaking insights and the development of novel therapeutic approaches in ocular disease.

KEYWORDS - age-related macular degeneration, retina, vitamin D, blindness

¹ School of Medicine, University of Jordan, Amman, Jordan

² Terna Medical College, Navi Mumbai, India

³ Ayaan Institute Of Medical Sciences, Telangana, India

⁴ Liaquat National Hospital and Medical College, Karachi, Pakistan

⁵ Health Services Academy, Islamabad, Pakistan

⁶ German Jordanian University, Madaba, Jordan

⁷ Mallareddy Institute of Medical Sciences, Hyderabad, Telangana, India

⁸ Alluri Sita Ramaraju Academy of Medical Sciences, Andhra Pradesh, India

⁹ Ayaan Institute Of Medical Sciences, Telangana, India

¹⁰ Osmania Medical College, Telangana, India

Was There a Difference in the COVID-19 Symptoms Among Ghor Elsafi Population Either Before or After Receiving the COVID-19 Vaccines?

Ghadeer M. AlManaseer¹, Samah M. Shehata², Amal M. Jameel¹, Rami K. AlEmoush¹,
Sondus W. AlMalahmeh¹, Nesrin Riad Mwafi⁶

ABSTRACT

BACKGROUND - COVID19 vaccination had high positive results on infections worldwide. Even if someone has been infected after the vaccination; it will be less severe symptoms and will have a better prognosis.

AIM - To assess the COVID-19 clinical presentation, the vaccination status and the need for hospitalization both before and after vaccination among Ghor ELSafi residents.

MATERIALS AND METHODS - A community-based study was conducted in Ghor ElSafi, al-Karak, Jordan. A questionnaire was conducted on the google form. A total of 101 participants were classified into: first group (n = 58) (Participants infected before COVID-19 vaccination) and second group (n = 43) (participants infected at least 2 weeks after COVID-19 vaccination). Demographic data, History of SARS-CO2 infection and vaccination, Different COVID-19 symptoms, hospitalization, ICU admission and oxygen therapy need were assessed for all participants.

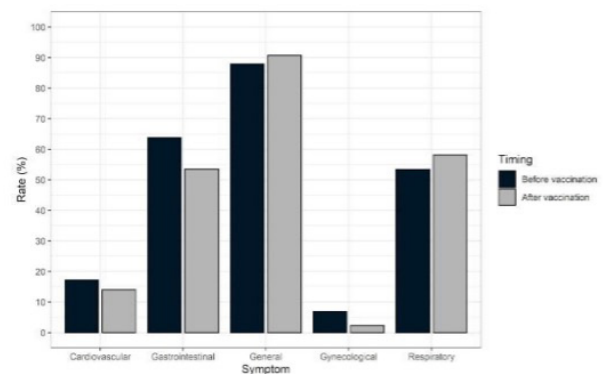
RESULTS - All participants were COVID-19 vaccinated. The mean age was 38 (± 12.3) years with 51.9% was males. About 32.6% had comorbidities. There was no significant differences between both groups regarding the prevalence of either general, gastrointestinal, respiratory, cardiovascular or gynecological symptoms (Figure 1). There were variations in some COVID-19 symptoms; Group (1) participants had a higher rate of anosmia/ageusia, a lower rate of sneezing and dry cough than Group (2). About 12.9% of participants required hospitalization, 7 participants required O2 therapy, and 2 were admitted to the ICU. The mean hospital stay was 7.38 (± 6.16) days without statistical significant difference between both groups.

¹ Medical student, Mutah school of medicine, Karak, Jordan

² Assistant professor of chest diseases, faculty of medicine zagazig university, Egypt/ Assistant professor of internal medicine, mutah university, Jordan

³ Biochemistry and molecular biology Department, faculty of medicine, Mutah university

Figure 1. Different clinical symptoms of COVID-19 disease before and after vaccination



CONCLUSIONS - most of the COVID symptoms were statistically non-significant between pre-vaccinated and post-vaccination groups, except few symptoms. Participants who got infected before vaccination had a higher rate of anosmia/ageusia, a lower rate of sneezing and dry cough.

KEYWORDS - COVID19, Vaccinations, clinical symptoms