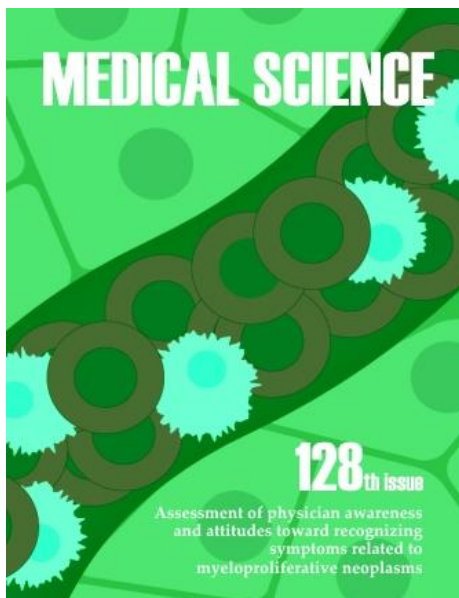


Medical Science

About the Cover



Background: The level of awareness and attitudes of primary care physicians toward diagnosing myeloproliferative neoplasms (MPNs) is widely unexplored and many physicians overlook the symptoms of MPNs. Identifying MPN related symptoms by the primary care physician can lead to early recognition of the disease and prevent MPN related complications. **Methods:** In this cross-sectional study data was collected via a survey questionnaire from 99 primary care physicians (family medicine, internal medicine, emergency medicine) within the Ministry of National Guard Health Affairs (MNGHA) facilities in Riyadh, Saudi Arabia. The aim is to assess the primary care physicians' awareness of MPN related symptoms. **Results:** There is a statistically significant difference in the level of awareness of MPN symptoms between physicians in each department. Emergency physicians scored the lowest mean score (3.21 ± 0.22) and failed to identify most of the MPN-related symptoms whereas most Internal Medicine physicians (3.46 ± 0.34) and Family Medicine physicians (3.45 ± 0.34) were able to identify most of the symptoms. **Conclusion:** Many physicians failed to recognize disease specific symptoms but were able to identify "B" symptoms. A great proportion of physician failed to recognize splenomegaly related symptoms which are associated with poor disease outcome. Therefore, we emphasize the importance of educating primary care physicians of the presentation of these disorders which can prevent unnecessary hospital costs and achieve better patient outcomes. (Ref: Alahmari B, Almotairi M, Yousef KB, Alharbi M, Alanazi M, Abdullah M, Omair A. Assessment of physician awareness and attitudes toward recognizing symptoms related to myeloproliferative neoplasms. Medical Science 2022; 26:ms392e2470).

The prevalence of neck pain and low back pain among personal computer gamers in Saudi Arabia

Mohammed Attiah, Ghalia Almutairi, Faisal Alnahdi, Husam Tamim, Lina Güneş, Aqeel Alrashid

Introduction: Neck pain and low back pain are serious health concerns that affect both adults and children. Personal computer (PC) gamers Wasted a lot of time playing computer games. Therefore, they may be prone to increased neck and back pain. *Aims:* To determine the prevalence of neck and low back pain among PC gamers in Saudi Arabia. *Methods:* A cross-sectional study was conducted on PC gamers in Saudi Arabia using an online questionnaire distributed in Arabic from January 1st to 10th, 2022. The questionnaire collected data on socio-demographic characteristics, daily physical activity, neck pain disability, and low back pain disability. *Results:* This study included 389 PC gamers, 73.5% of whom were male. The most populated group included gamers from 18 to 25 years of age. 6.7% of the respondents played computer games for more than 10 hours per day, and 11.1% played computer games on 30 days per month. Regarding neck and back trauma, 10.3% reported previous neck injury, whereas 27.2% reported previous back injury. *Conclusion:* Our study demonstrates the significant association between increased hours of daily computer usage and increased pain in multiple body regions. The most important risk factors for pain are previous trauma to the neck or back, leaning forward while sitting in a chair, playing computer games for more than 10 hours per day, and playing computer games on 30 days per month. Thus, it is essential to raise awareness of the appropriate sitting position, importance of daily physical activity, and dangers of a sedentary lifestyle among PC gamers.

Medical Science, 2022, 26, ms391e2420

Assessment of physician awareness and attitudes toward recognizing symptoms related to myeloproliferative neoplasms

Bader Alahmari, Meshari Almotairi, Khalid Bin Yousef, Majid Alharbi, Mohammed Alanazi, Mehab Abdullah, Aamir Omais

Background: The level of awareness and attitudes of primary care physicians toward diagnosing myeloproliferative neoplasms (MPNs) is widely unexplored and many physicians overlook the symptoms of MPNs. Identifying MPN related symptoms by the primary care physician can lead to early recognition of the disease and prevent MPN related complications. *Methods:* In this cross-sectional study data was collected via a survey questionnaire from 99 primary care physicians (family medicine, internal medicine, emergency medicine) within the Ministry of National Guard Health Affairs (MNGHA) facilities in Riyadh, Saudi Arabia. The aim is to assess the primary care physicians' awareness of MPN related symptoms. *Results:* There is a statistically significant difference in the level of awareness of MPN symptoms between physicians in each department. Emergency physicians scored the lowest mean score (3.21 ± 0.22) and failed to identify most of the MPN-related symptoms whereas most Internal Medicine physicians (3.46 ± 0.34) and Family Medicine physicians (3.45 ± 0.34) were able to identify most of the symptoms. *Conclusion:* Many physicians failed to recognize disease specific symptoms but were able to identify "B" symptoms. A great proportion of physician failed to recognize splenomegaly related symptoms which are associated with poor disease outcome. Therefore, we emphasize the importance of educating primary care physicians of the presentation of these disorders which can prevent unnecessary hospital costs and achieve better patient outcomes.

Medical Science, 2022, 26, ms392e2470

Prevalence and associated factors of neck, shoulder, and low-back pains among medical students at Umm Al-Qura University, Saudi Arabia: A cross-sectional study

Osama Abdullah Abdulrahman, Abdulaziz Ali Alsaedi, Mahmoud Ahmad Alshenqity, Ameen Ahmad Alshenqity, Abdullah Sami Eterji, Anas Mohammed Al-Amodi, Mokhtar Mahfouz Shatla

Background: Medical students frequently complain of neck, shoulder, and lower back musculoskeletal pain (MSP), which is a very common health issue. This study's major goal is to measure and assess the prevalence of neck, shoulder, and lower back pain among medical students at Umm Al Qura University in Saudi Arabia and to look into the risk factors for MSP. *Methods:* This descriptive cross-sectional study was done from January 2022 to February 2022. The study was done on 495 medical students who were chosen through a random sample. The survey was structured, and self-administered. *Results:* Throughout a number of academic years, we polled 495 college students. With the exception of the fifth year (45; 9.1%) and the sixth year (47; 14.9%), when we received fewer response, the distribution of academic years was comparable. There were 449 participants who reported they did not smoke, and none of the participants reported having recently experienced any MSK trauma. However, 181 participants reported having MSP, and half of them said the pain interferes with their study time, while the other half said the pain does not interfere with their ability to sleep well or perform their daily tasks. Only (41; 22.7%) reported that the pain interferes with their ability to study. The majority of the participants were female (326; 65.9%). *Conclusion:* The risk factors for musculoskeletal pain in medical students include insufficient sleep and little physical activity. We can control MSP, though, thanks to improved behavioral change understanding and future medical therapies.

Medical Science, 2022, 26, ms393e2473

CASE REPORT**Myeloid sarcoma involving the central nervous system as initial presentation of acute myeloid leukemia patient: A case report**

Waleed Murshid, Badr Hafiz, Raghad Aljohani, Daliyah Al Qulaiti, Omar Aljohani

Extra medullary leukemic infiltration of CNS is extremely rare, and its incidence is 3%. Myeloid sarcoma (MS) of the central nervous system (CNS) is associated with a poor prognosis and has an aggressive course. Most commonly associated with hematopoietic neoplasm and, rarely, occurs in an isolated fashion. Presentation of MS is highly variable, the patient might present with a newly neurological deficit due to mass effect that required neurosurgical consideration, and urgent debulking require as a life-saving measure as in our patients. Despite the controversial area in management of MS involving the CNS, we present a case of acute myeloid leukemia (AML) with MS involving the CNS. Our patient was treated surgically as it was life-saving since the patient presented with a focal neurological deficit. Our patient was admitted for the whole duration and followed conservatively by a multidisciplinary team (neurosurgery/hematology-oncology and intensivists). Clinical presentations, neuroimaging, immunohistochemical findings, and the prognostic indicators as well as the survival rates, are discussed.

Medical Science, 2022, 26, ms394e2482

Scar endometriosis following laparoscopic surgery: A rare case report

Akruti Shinde, Kamlesh Chaudhari, Deepti Shrivastava, Sunil Kumar, Priti Verma

Endometriosis is a major gynaecological disorder that affects 5% to 10% of female in their reproductive years. The ectopic implantation of functioning endometrium outside the uterus, with the pelvis being the most common site, is known as endometriosis. Scar endometriosis is difficult and rare to distinguish from other surgical diseases. It can be found in 0.1 percent of women with a scar on their abdomen. These lesions usually follow gynaecological and obstetrical surgeries including laparotomy and laparoscopic approaches of abdominal and pelvic cases. Following a laparoscopic myomectomy, one patient developed scar endometriosis. This rare condition's diagnosis, pathogenesis and treatment are being discussed.

Medical Science, 2022, 26, ms395e2111

ANALYSIS

Peripheral nerve excitability among males in type-2 diabetes mellitus with and without diabetic neuropathy: A cross-sectional study

Riyas Basheer KB, Dinesh KVN, Subhashchandra Rai, Mohammed Arshak AT

Background and Aim: Diabetic neuropathy increases with the duration of diabetes and also poor glycemic control fasten the disability associated with neuropathy. This leads to a change in the nerve excitation and action potential propagation. Rheobase and Chronaxie values from SD curve give the excitability of the nerve. This study aims to find the peripheral nerve excitability by using Rheobase and Chronaxie values based on the neuropathy status of T2DM subjects. *Materials and Methods:* This was a cross-sectional study conducted on 213 subjects including 141 T2DM subjects and 72 non-diabetic subjects. T2DM subjects were classified into two groups based on the duration of diabetes (< 10 years & >10 years). All subjects nerve excitability from proximal and distal muscle groups by using Rheobase and Chronaxie value obtained from SD curve. *Results:* This study shows that 33.8% of T2DM with < 10 years and 68.60% of T2DM with > 10 years having neuropathy. In all the groups both Rheobase and Chronaxie, values show statistically significant differences ($p < 0.001$) in all the muscle groups. The Rheobase and Chronaxie values were higher in T2DM with > 10 years followed by T2DM with < 10 year and Non diabetic group. *Conclusion:* Our study states that Rheobase and Chronaxie values are higher in T2DM with > 10 years and also failed to prove a statistically significant difference between neuropathic and non-neuropathic TDM in nerve excitabilities based on the duration of diabetes.

Medical Science, 2022, 26, ms396e2427

Impact of covid-19 outbreak on emergency visits at King Saud Medical city - A retrospective study

Faheem Mohammed Alanazi, Eradah A Almarhoon, Ahmed D Alhejaili, Hassan H Al Jalooud, Maram M Alawwad, Moshabob S Alqahtani, Manar A Hamdoon, Malak A Hamdoon, Reem C Alanazi, Khalid M Alghamdi, Ibrahim F Alanazi, Ibrahim M Alghamdi, Ali M Aldhufairi, Rayan M Alqahtani, Sameh Ahmed

The spread of COVID19 put a lot of extra work on emergency doctors, due to increased visits as a result of respiratory failure and other consequences caused by the infection. our research aims to ascertain the impact of the COVID-19 epidemic on emergency department visits based on triage levels King Saud Medical City, Riyadh, Saudi Arabia, following a retrospective observational design to determine the impact of the COVID-19 epidemic on emergency department visits in King Saud Medical City, Riyadh, Kingdom of Saudi Arabia, from June 1, 2020, to May 31, 2022. The study included all patients presented for emergency department visits at King Saud Medical City in Riyadh, Kingdom of Saudi Arabia during the period of the study. Data was collected and analyzed using SPSS software, version 26. From a total of 92874 patients, 76.2% presented during the post-pandemic. The triage level showed a significant increase from pandemic to post-pandemic. This was mostly observed in level 4 (which changed from 8.5% pandemic to 91.5% post-pandemic) and level 5 (which changed from 17.4% to 82.6%), which was statistically significant with a p value less than 0.001. Referral and OPD showed an increase of 17.5% and 3.0%, respectively. But a decrease in the discharges, deaths, and discharges against medical advice was observed. The presentation rate to cardiology, internal medicine, and orthopedics was significantly reduced.

The prevalence of smoking among medical students in Northern Border University of Saudi Arabia

Malik Azhar Hussain, Mohammed Faleh M Alenezi, Faris Athal F Alanazi, Ziyad Daham R Alanazi, Abdulaziz Ahmed Q Alanazi

Background: Tobacco is the utmost imperative avoidable reason of mortality globally. Smoking in medical students is a critical issue because they are future healthcare providers and are expected to show a momentous starring role in helping people to quit smoking. *Objectives:* This study was conducted to estimate the pervasiveness of smoking in medicinal scholars of Northern Border University in Arar, Saudi Arabia, to look at smoking patterns and the causes of it, to evaluate the links between smoking and other sociodemographic characteristics as well as the causes of smoking and efforts to quit. *Methods:* The study was cross sectional study. All medical scholars on the period of study were included in the study. Data was collected via personal interview and filling a questionnaire. *Results:* Males constituted 54.2% of the respondents, the prevalence of smoking was 15.8%; 29.2% among males and there was no smokers in females. Year of study of medical student, and positive family history of smoking had a significant effect ($P<0.05$). 36.8% of the smoker medical students in the study reported smoking 11–20 cigarettes daily, while 23.7% said they smoked between one and ten cigarettes daily. However, 28.9% of smokers in college admitted to using a water pipe (sheesha). In 100% of the smoking medical students, smoking was a personal decision. Intention to quit smoking was reported by 57.8% of them. *Conclusion:* Extraordinary proportions of smoking are found in medical students in Northern Border University, KSA.

Medical Science, 2022, 26, ms398e2468

Association between chest radiographic findings and clinical outcomes in pediatric patients with bronchiolitis at King Abdulaziz University Hospital

Alyaa Garout, Mohammed H. Alhomrani, Majed M. Alharbi, Samaher S. Hazzazi, Abdulaziz A. Subyani, Reem A. Alghanmi, Ghofran Ageely

Background: Acute lower respiratory infections (ALRI) affect between 120 million and 156 million people worldwide. Patients who have been diagnosed with bronchiolitis frequently have chest X-rays (CXR). However, local guidelines advocate not using CXR regularly. *Aim:* To assess the relationship between radiologic findings and clinical outcomes in pediatric patients with bronchiolitis and the usefulness of CXR findings as prognostic factors in acute bronchiolitis. *Methodology:* We conducted a retrospective cohort study in the Department of Pediatrics at King Abdulaziz University Hospital (KAUH), Jeddah, Saudi Arabia during 2021–2022. The study included pediatric patients <2 years old, admitted due to acute bronchiolitis, who underwent CXR. *Results:* Interstitial infiltration was the most common abnormal radiologic finding ($n=132$; 62.9%). Atelectasis was significantly associated with longer hospital stays ($p=0.018$), and hyperinflation was observed to be an independent predictor of intensive care unit (ICU) admission ($p=0.048$). *Conclusion:* In addition to respiratory distress, patients with atelectasis should be considered high risk patients requiring more aggressive treatment to shorten their hospital length of stay and reduce the risk of ICU admission and ventilator use.

Medical Science, 2022, 26, ms399e2457

Parents' knowledge and management of children's fevers in Saudi Arabia after the COVID-19 pandemic

Somaya Abdulrahman, Shada Fayad, Najd Al Anazi, Esraa Abdulgader, Tahani Alqahtani, Ashwaq Alsukhayri, Albatul Al-Shwail, Ali Aljifry, Sarah Alsamaan, Khalid Aboalshamat

Introduction: Fever is a common childhood symptom that is considered to be the cause of around 70% of pediatric visits. *Objectives:* This study aimed to assess parents' knowledge about and management of fevers in children since the COVID-19 pandemic in Saudi Arabia. *Methods:* This cross-sectional study collected data from 488 Saudi Arabian parents using a self-administered questionnaire to assess the parents' knowledge about fevers and how to manage them in children. SPSS was used for analysis. *Results:* The mean total knowledge score was 8.85 ± 2.09 out of 18, indicating poor knowledge levels. Females had higher total knowledge scores than males. Only 3.69% of respondents identified the rectum as the best location for taking children's temperatures. A total of 59% knew that fever can lead to seizures, but 65% believed it also leads to blindness. Most used ear thermometers (51.43%). A majority (76.43%) thought COVID-19 made them more concerned about fevers, with 65.98% becoming more worried about children's fevers after COVID-19. *Conclusion:* Saudi Arabian parents have low levels of knowledge about children's fevers after COVID-19, despite believing the pandemic improved their knowledge. More health-promoting campaigns are needed to boost knowledge about childhood fevers.

Medical Science, 2022, 26, ms400e2456

RESEARCH

Pomegranate peel boosts the potential of Manuka honey to protect against ethanol-induced gastric ulcers in rats by enhancing its anti-inflammatory and antioxidant mechanisms

Osama AH Abuzinadah, Soad S Ali, Ghadeer M Alsrehy, Fatma A Al-Nefei, Naser A Alkenani, Daklallah Ahmed Almalki

Discovering alternative safe medicine for the management of gastric ulcers (GU) is a vital issue. This study aimed to investigate the possible protective effect of adding pomegranate peel (PP) to the Manuka honey (MH) against ethanol (EtOH)-induced GU in rats, highlighting the anti-oxidative and anti-inflammatory mechanisms. Twenty four rats were randomly divided into 6 groups; C

(control), GU (EtOH 0.5 mL/100 g), OM (omeprazol 40 mg/kg), MH (2.5 g/kg), PP (PP 250 mg/kg), and PP+MH (PP 250 mg/kg and MH 2.5 g/kg). Stomach sections were stained with H&E, PAS, and tumor necrosis factor α (TNF α) (immunohistochemical staining). Gastric contents of malondialdehyde (MDA), interleukin 2 (IL-2), IL-6, and nitric oxide (NO) were estimated. In comparison with the C group, EtOH caused marked damage of stomach surface mucous epithelium with degenerative changes, and hemorrhage of glandular elements, gastric MDA, TNF α , IL-2, and IL-6 were elevated while reduced gastric contents of mucus and NO. Immunohistochemical staining of stomach mucosa showed marked increased TNF α expression. Oral administration of OM, MH, and PP+MH improved all biochemical, histological, and immunohistochemical alterations. The best effect owes to the PP+MH combination. The combination of PP+MH had a protective effect on EtOH-induced GU, as it boosted the potential of MH to act as an anti-inflammatory and antioxidant.

Medical Science, 2022, 26, ms401e2330

CASE REPORT

High-grade appendiceal mucinous neoplasm: Report a case

Hawra Shakeeb, Safa Al Shaikh

Appendiceal mucinous neoplasm (AMN) includes a group of diseases which are classified into Low grade and high grade appendiceal mucinous neoplasm (LAMN and HAMN) respectively. These rare tumors have limited published data and more trials are required to grasp a better understanding of the disease. In this report, we discuss a rare case of HAMN in a 54-year-old Nepalese male presenting to our hospital complaining of right lower abdominal pain for 7 days associated with Nausea, vomiting and anorexia. On examination abdomen was soft, mildly distended with severe right iliac fossa tenderness and positive rebound tenderness. A presumptive diagnosis of complicated appendicitis was made. However, the final diagnosis of HAMN was made after the pathological specimen was resected surgically by laparoscopic appendectomy and was sent for histopathology. Our case report highlights the importance of including HAMN as a differential for complicated appendicitis cases especially in patients at their 60 decades.

Medical Science, 2022, 26, ms402e2428

ANALYSIS

Diagnostic yield of computed tomography for suspected spine fracture in patients older than 50 years following fall down and predictors of emergency interventions: A retrospective study

Dunya N. Al Faraj, Hassan Y. Alhashim, Mustafa A. Alsaleh, Mohammed A. Albahrani, Taleb H. Aldandan, Rawan E. Alsulami, Abdulmonem A. Alsaleh

Background: The National Emergency X-Ray Utilization Study criteria is used to determine the need for Computed tomography scan and reduce radiation exposure in suspected cervical spine injury cases. However, it is insufficient, and does not apply to injuries of the thoracic or lumbar spine. *Objective:* To identify predictors that indicate the use of computed tomography scan for spine fractures and to determine the factors that predict emergency treatment. *Methods:* This retrospective study is based on hospital records of patients over 50 years who presented to King Fahd Hospital of the University Emergency Department after falling and underwent Computed tomography. 1425 patient files were reviewed; among them 142 met the research criteria. *Results:* The median age was 68 years with an almost equal participation of both genders. A male gender, the need for hospital admission and high creatinine level were all found to be significantly associated with fracture (P-value = 0.049; 0.008 and 0.026, respectively). *Conclusion:* High creatinine level and being male might be used to indicate use of Computed tomography scan but these needs to be further studied.

Medical Science, 2022, 26, ms403e2364

The impact of education intervention on awareness of cervical cancer and barriers to HPV vaccination among Saudi pregnant women

Sultan H. Almutairi, Safa A. Alsedrah, Khalid S. Almutairi, Yara R. Albayyahi, Osama M. Almutairi, Hassan M. Alamri

Background: Cervical cancer is one of the leading killers of women worldwide despite the availability of screening programs and preventive HPV vaccination. Education intervention could help ease the burden of cervical cancer and associated morbidity and mortality. We evaluated the impact of an education intervention on awareness of cervical cancer, risk factors and presentation, screening, and perceived barriers to HPV vaccination among Saudi pregnant women. *Methods:* We conducted a comparative study pre- and post-education of 18-45 years old pregnant women. Descriptive analysis was performed, and the Chi-Square test was used to compare post-and pre-education knowledge and awareness levels with $p < 0.05$ for statistical significance. *Results:* We enrolled 400 participants, and most (39.3%) were 41 – 45 years old, 69.5% had a university degree, 52% were unemployed, and 40.8% were non-health field workers. After the education session, the awareness and knowledge improved significantly as evidenced by a 2-4 and 1.6-3 times increase in awareness about cervical cancer risk factors ($p=0.000$), and symptoms ($p=0.000$), respectively, 1.5-3 times increase in awareness of Pap smear ($p=0.000$), and 2-3 times increased awareness of HPV vaccination and ($p<0.005$). Post-education evaluation also revealed a significant reduction in fear of HPV vaccine side-effects ($p=0.000$) and an increase in a good attitude

towards vaccination cost ($p=0.005$) and effectiveness ($p=0.003$), which were among perceived barriers. *Conclusion:* Our study findings showed that educational intervention significantly improved awareness and knowledge of cervical cancer, its screening and reduced barriers to the HPV vaccination. The establishments of broader education programs, as well as screening, are recommended.

Medical Science, 2022, 26, ms404e2411

Role of mouthwashes in combating SARS-COV 2 COVID-19 virus: Assessment of the knowledge of Middle Eastern Dentists

Suhael Ahmed, Shugaa Nasir Alotaibi, Nishath Sayed Abdul, Maha Mohammed Alotaibi, Maan Ahmed Sheikho, Alaa Ali Alharthi, Bdour Saud Alenezi, Rawan Al Jamali, Amal M Almalhan, Nora Abdallah Aljethaily, Nafeesa Tabassum

Background: Mouthwashes are deemed an effective measure in mitigating the risk of coronavirus contraction in dental clinics through limiting aerosol spread during procedures. This study aimed to evaluate the attitude, knowledge, and practices of Middle Eastern dental professionals regarding the use of mouthwash for combatting the coronavirus. *Methods:* This cross-sectional study was conducted online between the 1st and 15th of September 2021 where a random sample of dental practitioners were enrolled from Saudi Arabia, Qatar, Oman, UAE, Egypt, Turkey, Bahrain, and Kuwait. The survey included questions about the participants' demographics, degree of knowledge and use of mouthwashes for coronavirus. *Results:* Of the 880 participants filling the questionnaire, the majority were males 500 (56.8%), consultants 324 (36.8%), and based in Egypt 224 (25.5%). Only 5.6% of the enrolled dental practitioners were conscious of the presence of more than four types of medicated mouthwashes. Almost 86% of the participants were unknowledgeable of the benefit of mouthwashes for COVID 19, with an approximately similar percentage (83.2%) of dentists believing that the current literature is deficient. Notably, more than two-thirds of the dentists had a negative attitude towards the role of mouthwashes in disrupting the coronavirus. Also, 43.2% of the participants had a wrong perception of the superiority of chlorhexidine in eradicating the virus as compared to other rinses. *Conclusion:* Dental professionals based in the Middle East have inadequate knowledge and a negative perception of the role of mouthwashes in minimizing cross-transmission of coronavirus between dentists and patients in dental clinics.

Medical Science, 2022, 26, ms405e2483

Comparative evaluation of the effectiveness of antioxidants in the complex treatment of periodontal diseases in patients with duodenal ulcer with fixed metal-containing dentures

Oleksandra I. Roshchuk, Vasyl P. Havaleshko, Yaroslav R. Karavan, Oksana S. Khukhlina

An open, prospective study was conducted in which 37 patients with periodontal disease (PD) and duodenal ulcer (DU) in the scarring phase with fixed metal dentures (FMD) and fixed metal-ceramic dentures (FMCD) participated. To determine the treatment effectiveness, two groups of patients were formed: the 1st group (16 people), which in addition to traditional therapy of PD, received vitamin E 100 mg once a day for 30 days; Group 2 (21 people) additionally received reduced L-glutathione (250 mg) with astaxanthin (40 mg) (Hepaval ASN) 1 capsule 2 times a day for 30 days. Complex therapy of patients with PD on the background of DU with fixed dentures with the inclusion of GSH and astaxanthin for a month helped to reduce the intensity of lipid peroxidation (LPO), oxidative modification of proteins (OMP) and endotoxemia, reducing the activity of PD, which can be considered a preventive measure to prevent further loss of teeth and the need for prosthetics.

Medical Science, 2022, 26, ms406e2366

Needle stick injuries, knowledge, attitude and practice of medical students in Umm Al-Qura University

Bassam Musleh Bin Laswad, Sultan Fahad Alobaidi, Abdualziz Abdullah Almtfri, Abdullah Mosleem Alobedi, Azzam Musleh Bin Laswad, Abdulkarem Awadh Alzahrani, Osama Nabil Al-Batati, Abdulrahman Masoud Alharthi, Salah Mohammed Taha Bakry, Mokhtar Mahfouz Shatla

Background and aim: Approximately 3 million Health Care Workers are exposed to needle stick injuries (NSIs). Although the majority of these accidents have no sequela, at least 20 distinct pathogens, such as hepatitis B and C viruses or human immunodeficiency virus have been reported to be transmitted by NSIs. This study was conducted to determine medical students' knowledge, attitudes, and practices of NSIs in Umm AL-Qura University. *Methods:* This descriptive cross-sectional study was conducted based on an electronic survey formed by Google Forms in April 2022. The survey was distributed to all medical students from the second-year to intern level who is studying at Umm-AL-Qura University. *Results:* Overall, 359 students were enrolled in this study. Most of the students' age ranged from 21-23 age groups (63.5%), and most of the participants were males (86.6%). The majority of our participants (64.1%) were aware about NSIs, blood and exposure to body fluid. The majority of students had no previous history of NSI (88.3%), compared with students with positive history (11.7%). Most students completed their three HBV vaccination doses (60.77%). *Conclusion:* Our study reported NSIs' knowledge level, attitudes, practices and preventable methods. Medical students would at Umm Al-Qura university benefit from proper education and training to control and limit the incidence of NSIs.

Medical Science, 2022, 26, ms407e2415

The ethics of animal research: A survey of the public in Saudi Arabia

Sarah Saleh Al-harbi, Ghada Ahmad Al-adwani, Bushra Ahmad Bukhari, Ghosoon Mohammed Bafaraj, Waad Saleh Alotaibi, Tiaf Musaad Alharbi, Basmah Eidhah Alsukhayri, Yosra Z. Al-Hindi

Background: In the extent of medical evolution and research we aimed to consider the ethics of using animal in research, drug therapy trials and experimental procedures, we wanted to explore the opinion of the public in Saudi Arabia towards it. *Methods:* a survey was established from January 2022 to August 2022 in Google form and was distributed by the internet and social media to the public of Saudi Arabia. Consent was essential and participation was voluntary. *Results:* Around 414 people from the public responded to the survey completely, 56% of them were female and 44% were male. Around 77% of them were aged between 18 to 24 years old. 45% were studying in health care universities especially medical, pharmacy, nursing, and dental colleges. 77% were from the western province of Saudi Arabia. More than half of the participants argued positively about the need of using animals in research and the wide benefits of it for humanity especially for experiment on very serious health conditions for humans. However, around 30% felt that there can be an alternative for animals for such situation. *Conclusion:* More debate is vital to be established with a greater number of public participation and interviewing for a possible convincing method for collecting rationale opinions.

Medical Science, 2022, 26, ms408e2490

CASE REPORT

Polycystic kidney disease - A case report

Jehad A. Aldali, Hamzah J. Aldali, Rawand J. Aldali, Abdullah Z. Aldali, Mohammed A Barayan

This report presents a case report of a 29 year old Saudi Arabian patient who has been recently diagnosed with inherited polycystic kidney disease. The patient suffered from hypertensive symptoms and severe abdominal pain. Haematology, chemistry and microbiology examination was performed on the patient, alongside an ultrasound examination. The patient appeared to have hypertension, high uric acid and high lipid profile. The ultrasound results showed enlarged fatty liver, two cysts in the left liver (1.28cm and 1.32cm in width) and one cyst in the right liver (0.85cm in width). Currently, the patient's renal function is normal, but suffers from severe abdominal and kidney pain regularly, alongside hypertensive symptoms. The current treatments provided are Olmetec for controlling hypertension and intravenous analgesic such as xefo, morphine and paracetamol. There is currently no treatment for polycystic kidney disease. Therefore, patient is continuously monitored on a monthly basis.

Medical Science, 2022, 26, ms409e2421

Pulmonary rehabilitation in the management of rhino-orbito-cerebral mucormycosis infection: A post-covid-19 complication

Shrushti Daga, Vaishnavi Yadav, Vaishnavi Warutkar, Sakina Saifee, Moli Jai Jain

Mucormycosis, often known as 'black fungus' in India, is a fungal illness that has been identified in COVID-19 patients on an irregular basis. This case report describes a patient who was diagnosed with rhino-orbital-cerebral mucormycosis infection following COVID-19 infection. The COVID-19 infection weakens the patient's immune system, making the patient more susceptible to other fungal infections. He had surgery for this as well as ocular exenteration surgery. A physiotherapy treatment was intended to battle the post-surgery problems, including COVID-19 infection. The goal of the physiotherapy was to improve the patient's facial muscles after surgery. Following recovery from the COVID-19 infection, it also aimed to strengthen the patient's respiratory capacity and increase his exercise tolerance. As a result, the patient's quality of life improves. It included the facial proprioceptive neuromuscular facilitation (PNF) exercise as well as a well-planned cardiovascular exercise programme. The 6-minute walk test, peak expiratory flow rate, and quality of life questionnaire were used to assess the efficacy of the physiotherapy treatment.

Medical Science, 2022, 26, ms410e2233

ANALYSIS

Knowledge, attitude, practice and perception of sunscreen among Saudi population

Zahraa Alshayeb, Dalal Alsaadoun, Hawra Alyaseen, Maram Albadan, Sarah Alyaseen, Bayan Alhussain

Introduction: Direct exposure to solar radiation frequently can drastically increase the probabilities of skin cancer. However, this may be avoided via way of means of sunscreen use which is considered as an essential safety measure in opposition to the harmful effects of the Solar's ultraviolet rays on our skin. *Aim:* In this study, the awareness of sunscreen utilization was evaluated amongst Saudi population in conjunction with other sun-protective attitudes and practices. *Materials and methods:* For the purpose of this study, a structured questionnaire was designed with regards to knowledge, attitude, practice, and perception of sunscreen amongst Saudi population. The study was conducted between June to November 2021. The population sample was 3235 participants aged 18 years and above. *Results:* The findings of the study confirmed that the subsequent categories have a higher knowledge regarding sun protective measures and the significance of sunscreen utilization; the categories include younger individuals, females, singles, indoor workers, and individuals with higher education. *Conclusion:* In the current study, approximately half of the participants have accurate knowledge in line with sun protective measures and the significance of sunscreen use. The study has additionally recognized several areas of inadequate use of sunscreen. To overcome this unfortunate case, this study recommends sponsoring intensive campaigns to raise awareness across all community spectrums. These campaigns may even assist correct common misconceptions concerning sunscreen consisting of the pointless use whilst cloudy and negative affection to vitamin D level in the body. As a result, increasing the perception of effective sunscreen use in our country is probably needed.

Awareness and knowledge of Attention Deficit Hyperactivity Disorder among general population of Makkah, Saudi Arabia

Hazem Mohammad Aljabri, Bassam Musleh Bin Laswad, Hasan Zuhier Binjab, Mohammed Hasan Alturki, Abdulaziz Omar Babukur, Azzam Musleh Bin Laswad, Mohammed Osama Krenshi, Mokhtar Mahfouz Shatla

Background and aim: Attention Deficit Hyperactivity Disorder ADHD is considered as one of the common neuro developmental disorders. It is common among children and young adults, affecting their social, academic, and occupational functioning. ADHD can be diagnosed using the revised DSM-5 diagnostic criteria. As there is lack of studies that assess the awareness and knowledge of ADHD among the general population of Makkah, our study targets the general population of Makkah to assess their awareness and knowledge regarding ADHD. *Methods:* A descriptive cross sectional study using an electronic survey formed by Google forms. Data were obtained from residents of Makkah city aging 15 years and above. *Results:* A Total of 603 participants have enrolled in this study, 69 of them were excluded for not meeting the criteria. (94.2%) had heard about ADHD and (39.9%) of responders knew about it from social media. 56.6% considered that it's a mixed disorder (behavioral, neurological and psychiatric), whereas 24.2% believed it to be a behavioral disorder only. As for its cause, 80% of the participants believed it is a multi-cause disorder. In regard to the treatment, 75.1% determined that the best modality is combined medical and behavioral therapy, while 19.9% favored behavioral therapy, 2.6% preferred medications and 2.4% believed there is no treatment for ADHD. *Conclusion:* Our study reported the knowledge and awareness level of Makkah population regarding ADHD. Makkah residents would benefit from further education and orientation regarding ADHD.

Medical Science, 2022, 26, ms412e2440

The rife self-confessed disorders associated with hormonal contraceptives

Ebtehaj Saud ALmughais, Fatmah Fahad Alreshidi, Rana Aboras, Rasha Alarfaj, Samiah Ahmed Almeahmadi, Maram ALmohammadi, Maha Mohammad ALSugair, Hella O. AlOthman, Afag Altigani Ali, Aya Alsedig Ali, Samah Batran, Hussain Gadelkarim Ahmed

Background: The side effects of hormonal contraceptives (HCs) vary greatly between women, and different HCs cause distinct side effects. This study aimed to assess the rife of self-confessed disorders associated with hormonal contraceptives. *Methodology:* The study enrolled 200 ladies of reproductive age. One hundred women were HCs users (ascertained as cases) and 100 women non-contraceptives users (ascertained as a control group). *Results:* Irregular menstrual cycles were observed in 29% of the cases and 28% of the controls. In 21% of cases, the duration of menstruation recycling was unpredictable, compared to 26% in controls. Hormonal abnormalities were more common among controls than among cases. The hormonal associated problems in controls were: OR (95%CI) = 2.5550(1.1753 to 5.5545), P-value = 0.0179. The risk of recurrent infection among control group was OR (95%CI) = 1.5952 (0.8984 to 2.8326), P = 0.1109. *Conclusion:* The current study revealed no statistically significant differences in hormonal contraceptive-related illnesses between HCs users and non-users.

Medical Science, 2022, 26, ms413e2488

A meta-analysis of the effectiveness of internet-based cognitive-behavioral therapy on social phobia

Nazanin Ahangari, Maryam Bakhtiari, Amir Mahdi Katani

This meta-analysis was aimed at evaluating the evidence related to the effectiveness of Internet-Based Cognitive-Behavioral Therapy (ICBT) in patients with social phobia. A systematic review of Randomized Controlled Trials (RCTs) with regard to the effectiveness of ICBT for patients with social phobia was sought across multiple databases. The outcome variable in clinical trials was decline in symptoms of social phobia. The measures used included LSAS, SPS, SP-12, BAI and SAD. Twenty clinical trials met the inclusion criteria (1211 patients overall). The results of the analysis revealed that the ICBT is more effective compared to other treatments or control conditions based on patients' evaluation. The results of the present meta-analysis provide preliminary evidence of the effectiveness of ICBT as a clinical method for social phobia and suggest that more RCTs are needed to compare ICBT with common treatments such as medication, neurological methods, and behavioral interventions.

Medical Science, 2022, 26, ms414e2314

Effect of exercise on adult asthmatic patients in Riyadh 2022

Jamal Youness, Abdulrahman Hussamuldin, Yara Alzahrani, Yara Aboushark, Sana Sankari, Bandar Almeahmadi, Majed Alanazi, Qusai Alsulaiman

Background: Asthma is a chronic inflammatory disease of the airways characterized by wheezing; shortness of breath, chest tightness, and coughing that varies in severity and duration over time. The aim is to assess the effects of physical activity in adult asthma patients in Riyadh in 2022. *Methods:* A cross-sectional study contains an online questionnaire which composed of a message addressing the respondent and the purpose of the survey; the respondent's health status and the outcomes before and after exercising. Data collected in January-February 2022. Statistical Package for the Social Sciences (SPSS) helped analyze data and present the results. Suitable statistical tests of significance were used, considering a significant p-value of < 0.05. *Results:* A total of 143 participants, 81% were female, the mean age was 23.8, 92% were non-smokers, and 68% used inhalers for relief. Before exercising: 60% were asymptomatic, affected sleep in 79%, 50% took medications and 53% had daily activity limitations. After exercising: 66% were asymptomatic, 73% had sleep problems and 45% took medications with no daily limitations in 51%. 13% of

participants had pre-exercise asthma control, and 11% remained controlled post-exercise. 45% suffered from partially controlled asthma, and 30% became partially controlled. 43% had uncontrolled asthma and 42% were still uncontrolled. There is a statistically significant link between inactivity and asthma control $p = 0.001$. *Conclusion:* This data proves that exercise is a positive factor for asthmatic patients to decrease the frequency of medication usage and the incidence of sleep disturbances.

Medical Science, 2022, 26, ms415e2491

The prevalence of social anxiety disorder: A school related experience in Makkah city, Saudi Arabia

Salah M Bakry, Samar N Ekram, Abdulrahman M Alharthi, Sultan F Alobaidi, Eyad J Algahwaji, Abdulaziz F Alsharif, Ayar A Bukhari, Mohammed S Algahwaji, Faisal S Alnahdi, Batool M Alotibi, Bakr M Alharbi, Mohammad I Qashgry, Nimah J Dhafar

Background: Fewer researches have been conducted on social phobia in the context of severe social inequality and poverty, as seen in most developing countries. In this study, we addressed the prevalence of Social Anxiety Disorder (SAD) among school students and teachers in Makkah city. *Methodology:* Using a standardized tool for investigating Social Phobia Inventory (SPIN), an online survey was distributed among schools during September 2022. After data collection, an appropriate statistical analysis was implemented. *Results:* A total of 396 participants were enrolled in this survey. This study showed a high prevalence of SAD, while students showed a high prevalence rate of SAD compared with teachers. Moreover, moderate levels of SAD represent the highest frequency among other SAD intensities. A significant variation was found between participants with a previous positive history of SAD and mild SAD (P-value, 0.002). Similarly, participants with no history of SAD show significant variation with both "No SAD" and "Mild SAD" (P-value, 0.002). *Conclusion:* This study reported a high prevalence of SAD compared to other studies. Accordingly, we recommend more studies in Saudi Arabia.

Medical Science, 2022, 26, ms416e2493

Overuse of antibiotics in Saudi children with upper respiratory infection and diarrhea

Rashid Awad Abdalla Salih, Ebtehaj Saud AlMughais, Fatmah Fahad Alreshidi, Samiah Ahmed Almekhadi, Dalal Alayed, Hella O. AlOthman, Alrashidi Sari Mabrook, Alrashidi Ibrahim Ahmad, Fayeze Dehla Alrashidy, Mashael Alruwayshid, Abeersuliman Alshuniefi, Hussain Gadelkarim Ahmed

Background: The growth of antibiotic-resistant bacteria has been accelerated in recent decades as a result of antibiotic abuse and misuse. The goal of the current study was to evaluate the misuse of pediatric antibiotics in Northern Saudi Arabia concerning upper respiratory tract infections (URTI) and diarrhea. *Methodology:* Between May and August 2022, 400 residents of Hail, Northern Saudi Arabia, participated in this community-based descriptive survey. Independent of their age, social position, educational attainment, or monthly income, the participants were picked at random. *Results:* Approximately 56.7% of fathers and 63% of mothers had engaged in antibiotic abuse. Most frequently, age between 35 and 45 years was implicated in antibiotic overuse 41.6%, followed by age between 25 and 35 years 36%. University graduates made up the majority of antibiotic misusers 63.7%, whereas those with secondary and primary educations made up 28.7% and 7.6%, respectively. *Conclusion:* In Northern Saudi Arabia, overuse of antibiotics is common, particularly among fathers' parents. Community-based educational initiatives on antibiotic abuse are necessary for addition to wristband laws to minimize antibiotic overuse in Northern Saudi Arabia.

Medical Science, 2022, 26, ms417e2496

RESEARCH

Knowledge and attitude of Saudi women regarding autism

Sahar Abdel-Latif Abdel-Sattar, Hanan Abd Elwahab El Sayed, Nehad Ahmed Ibrahim Zahra

Autism spectrum disorder (ASD) is a neurodevelopmental disorder causing family stress. Increasing awareness about ASD will improve the mothers' engagement with their children and help them bear the stress effect of this disorder. *Aim:* To evaluate Saudi women's knowledge and attitude regarding ASD at Tabuk University, Kingdom of Saudi Arabia. *Design:* Descriptive design was utilized to fulfill the purpose of the study. *Setting:* This study was done at 5 colleges of Tabuk University, with a female section (applied medical sciences, science, medicine, business administration, computing and information technology) representing 25% of Tabuk University colleges. *Sample:* A convenience sample of women in the previous colleges (90) was taken according to inclusion criteria. Three data collection tools were used; 1) A self-administrated questionnaire sheet, including socio-demographic data. 2) Knowledge quiz 3) ASD attitude scale: to assess the attitude of women as regards ASD. *Results:* The participants mean age was 36.23 years, and although 52.2 % of women were inadequate knowledge, more than half of participants 53.3% were positive attitude regarding ASD. A statistically positive correlation is between the participants' knowledge and their attitude. Social status, educational level & women's work experience are significantly related to their knowledge about ASD ($p < 0.05$). *Conclusion:* Inadequate knowledge regarding ASD was prevalent among the current study participants. At the same time, most of them had a positive attitude toward ASD. Therefore, health education campaigns must be enhanced to improve knowledge and attitude about ASD.

Medical Science, 2022, 26, ms418e2406

Post-operative physiotherapeutic rehabilitation of 32-year sickle cell anemia patient with avascular necrosis of femoral head - a case study

Shrutika Wankhade, Pratik Phansopkar, Neha Chitale

Genetic diseases include sickle cell anemia (SCA) which is autosomal recessive and results in decreased blood supply to bones and tissues. Avascular necrosis is a condition in which there is reduction in the blood supplied to the bones. Avascular necrosis mostly occurs at joints with commonly at femoral head. In this case report, 32-year female patient having SCA is presented, since last 4 years patient is having bilateral hip pain and from last one month family members and she noticed right side limping. She received a minor injury to her right hip while exercising a month ago, and she began limping as a result. With these concerns, the patient was referred to the AVBRH hospital, where he underwent different examinations. On examination, the patient was found to have a right-side sub capital neck femur fracture and avascular necrosis related to SCA-SS type and Arthritis of both hips. Following that, the patient underwent a complete hip replacement on the right side. Post-operative physiotherapy treatment was started and it shows significant improvement and used to prevent secondary complications.

Medical Science, 2022, 26, ms419e2134

Isolated pancreatic tuberculosis mimicking pancreatic cancer: Case report

Anas Mohammed Aljoaid, Imran Ali Khan, Wael Ahmed Shahin, Nawal Abdulrahman Barnawi

Pancreatic tuberculosis is usually investigated as a mass or inflammation due to the lack of unique clinical or radiological characteristics; as a result, this rare extrapulmonary tuberculosis is usually diagnosed as pancreatic carcinoma. We present a 39-year-old female with pancreatic TB presenting as pancreatic carcinoma. The patient presented with abdominal pain in epigastric and right upper quadrant area for seven days with a previous contact of tuberculosis patient. She was jaundiced and tenderness on abdomen. Abdominal ultrasound revealed dilated common bile duct and computed tomography, and magnetic resonance cholangiopancreatography showed ill-defined mass at the medial aspect of the common bile duct involving pancreatic head. Endoscopic retrograde cholangiopancreatography also showed ill-defined lobulated lesion on pancreatic head. Biopsies revealed granulomatous inflammation and foci caseous necrosis confirming pancreatic tuberculosis. Patient was initiated on anti-TB treatment. Reporting rare cases help improve physician's abilities in identifying such specific illness which share common presentation clinically and radiographically.

Medical Science, 2022, 26, ms420e2472

ANALYSIS

The association of depression and anxiety with hypertension among adults in Riyadh, Saudi Arabia 2022

Khaldoun Marwa, Eman Alkhalidi, Gharam Alhenaki, Layan Alqahtani, Abdulrahman Hussamuldin, Deemah Alquraish

Objectives: Depression is a mental disorder that affects the daily function of individuals. Anxiety appears to be the most prevalent among mental disorders. Increased blood pressure can be a result of various psychiatric disorders. Our aim is to determine the relationship between Psychological Disorders and Hypertension among adults in KSA in 2022. *Methods:* A cross-sectional study Targeted 304 adults. Questionnaires were distributed to eligible participants. Hospital Anxiety Depression Scale (HADS) was used. The data underwent analysis and coding process and finally that was entered through SPSS. *Results:* Of the 15 participants, who were previously diagnosed with hypertension, 2% had borderline abnormal results and 1.6% had abnormal results in the HADS anxiety. ($P = 0.56$), only 0.7% had borderline abnormal results and 1.3% had abnormal results in the depression. ($P = 0.11$). *Conclusion:* An association with abnormal and borderline abnormal in the anxiety of the HADS was found. The results collected from the depression section show no clear association between hypertension and borderline abnormal/abnormal scores. Further studies in a larger population are crucial to establish a stronger relationship between mental disorders and the etiology of chronic illnesses such as hypertension.

Medical Science, 2022, 26, ms421e2503

Prevalence and different management of sleep disorders among medical students, Umm Alqura University Makkah, Saudi Arabia

Fawaz Saeed Baalaraj, Bassam Musleh Bin Laswad, Dyaa Esam Habeeb, Mutaz Ghazi Alshaikh, Mohammed Hussain Almatrafi, Mansour Matar Alafifi, Mokhtar Mahfouz Shatla

Background: Sleep is a reversible state of disconnection from the environment which helps the body and mind to recover and rest. Sleep could be interrupted by a numerous number of disorders and suffering from sleep disorders could affect a person physically and mentally. This study was done to assess the prevalence of sleep disorders and different modalities of using sleep medicine to improve sleep quality among medical students of Umm Al-Qura University. *Methods:* A descriptive cross-sectional study conducted at Umm Al-Qura University in Makkah, Saudi Arabia using electronic survey in September 2021. The study population was Umm Al-Qura university undergraduate medical students from the 2nd year to intern level. In *Results:* Of the 342 students who participated in the study, 55.6% of them had at least one sleep disturbance. Narcolepsy was the most often reported sleep condition

among students (43.9%), followed by insomnia (29.5%). According to the data, 38.6% of people in our population sleep between 6 and 8 hours per day, compared to 47.4% who sleep less than 6 hours daily. While interns made the fewest complaints about sleep issues, second-year medical students made the most. *Conclusion:* Our study found that sleep disorders prevalence is high among medical students. We recommend increasing the awareness about the important of sleep and activating the role of academic mentors or advisors and provide the support for junior medical students.

Medical Science, 2022, 26, ms422e2424

Factors responsible for non-compliance among diabetic patients: Primary healthcare experiences in Saudi Arabia

Muhammad Irfanullah Siddiqui, Salah Bakry, Faiz Alotibi, Abdulaziz Albarakati, Faisal Alshehri, Abdullah Fakieha, Satam Alharbi, Majid Hamed Ali

Background: Diabetes mellitus is the most common endocrine pathology. According to the World Health Organization, non-compliance patients, especially with long-term medication prescriptions for diabetes, have become a serious healthcare concern. *Methods:* We conducted a cross-sectional study in the western region of Saudi Arabia from February to April 2022. The online questionnaire distributed through social media included questions on compliance among diabetic patients attending a primary health center. We entered the data automatically into an Excel spreadsheet and used the Statistical Package for the Social Sciences for the analysis. *Results:* We surveyed 526 diabetic patients from western Saudi Arabia. Participants aged more than 50 years old represented the majority of responses (36.1%). Most of the participants had type 2 DM (52.85%). Moreover, most diabetic patients complied with diabetic clinics. *Conclusion:* Our findings show an adequate level of diabetic patients' compliance. Future studies must address the related influencing factors for non-compliance patients to enhance patients' health outcomes.

Medical Science, 2022, 26, ms423e2438

Community awareness of hereditary blood diseases and the benefit of premarital screening program in Saudi Arabia

Mohamed A Elhefny, Adnan Alessa, Saud Alzahrani, Yahya Almarhabi, Badr Almaedy, Omar Alshaikhi, Hatem Alessa, Hasna Alghamdi, Abdullah Alamri, Thamer Alghamdi

Sickle cell disease is a group of inherited syndromes characterized by the presence of hemoglobin S, abnormal hemoglobin that is poorly soluble and polymerizes when deoxygenated, which results in sickle-shaped erythrocytes. These syndromes manifest with vaso-occlusive phenomena and hemolytic anemia. SCD in Saudi Arabia, which suffers from high consanguinity marriage rates, creates a fertile environment for it to spread deep into its roots. This study has targeted the Saudi Arabian community based on wondering why after a decade and a half ago of applying to premarital screening programs still SCDs a health and social issue. By using an online questionnaire covering the kingdom's regions, surveyed all Saudi communities. A total of 11276 participants completed the questionnaire; Women represent 70.6% of the participants, while men represent 29.4%. The educational level of the participants was high with 69.8% having a university education and 27.9% having high school. The unmarried participants represent 63.8% (N = 7873), who show positive awareness and perception regarding the impact of hereditary blood diseases on quality of life and the use of the premarital examination program. Married participants represent 36.2% (N = 4091) of total participants which 44.98% (N = 1840) of them have consanguinity marriage and 55.1% (N = 2251) have no consanguinity. Remarkably, the percentage of affected children with SCD of a couple who has consanguinity marriage is almost the same percentage of affected children of couples with no consanguinity, but the severity and complications elevated more in children from consanguineous marriage.

Medical Science, 2022, 26, ms424e2505

RESEARCH

Therapeutic effects of paclitaxel and nivolumab on cancer stem cells of experimentally induced oral squamous cell carcinoma

Ahmed Samir Zakaria, Mohamed Gomma Khalial, Asmaa Mohamed Zahran, Mohamed Mahmoud Ahmed, Emad Alqalshy

Purpose: The main objective of this research was directed to evaluate the therapeutic effect of paclitaxel and nivolumab on cancer stem cells (CSCs) of experimentally generated hamster buccal pouch (HBP) carcinoma. *Methods:* 50 hamsters were grouped into five groups. GI: animals left untreated. GII: animals were painted with 7, 12-dimethylbenz (a) anthracene (DMBA) thrice a week. GIII: following DMBA application, animals injected intraperitoneally (IP) with nivolumab on days 7, 10 and 13. GIV: animals were treated with paclitaxel (IP), twice a week and metformin (IP), thrice a week. GV: animals were receiving a combination of nivolumab, paclitaxel and metformin. Following euthanization, right pouches were surgically excised, bisected with one section fixed and processed for H&E and immunohistochemical (IHC) examinations, and other section of the fresh tissue was used for evaluation by flow cytometric (FCM). *Results:* Gross observation histopathological, and IHC changes were recorded. By FCM, CD44+/CD24- and CD44+/CD24+ were detected. The results indicated that the CD44+/CD24- cells percentage in GI, GII, GIII, GIV and GV were 0.005%, 1.33%, 0.25%, 0.26% and 0.17%, respectively. While the CD44+/CD24+ cells percentage in GI, GII, GIII, GIV and GV was 0.001%, 0.11%, 0.05%, 0.03% and 0.02%, respectively. Apoptosis of CSC, in GI, GII, GIII, GIV and GV was 26.5%, 1.7 %, 38.1 %, 23.2% and 53.6% respectively. Regarding apoptosis of all cancer cells, the percentage of apoptotic cells is 1.72%, 24.5%, 54.2%, 48.3 and 68.3%, respectively. *Conclusions:* Combination of paclitaxel and nivolumab has the capability to suppress tumor development and induction of apoptosis in both CSC oral squamous cell carcinoma (OSCC) and non-CSC OSCC.

CASE REPORT

A diabetic amputee with a post-operative complication of a non-healing ulcer - A case report

Purva Shahade, Shubhangi Patil

The patient is a 58-year-old male diagnosed with type 2 diabetes mellitus 10 years back and is having loss of sensation in his bilateral lower limbs. Physical therapy intervention prescribed here focuses on functional exercises to help him gain independence. Diabetes mellitus is commonly known as a group of metabolic types of disorders. It eventually results in high blood glucose levels, excessive urge for urination, increased thirst, blurring of vision, tingling sensation, sweating as well as many more symptoms. Diabetes is responsible for increasing the chances of gangrene. Depending on the type of gangrene, amputation is usually advised. The foremost goal of rehabilitation is to enhance limb strength as well as flexibility and cardiovascular ability. The goal of our case study is to explain the importance of physiotherapy in the rehabilitation of a diabetic amputee to the reader.

Medical Science, 2022, 26, ms426e2190

Hobnail cell change in reactive angioendotheliomatosis, a potential diagnostic pitfall

Neha A, Shobana B

Reactive angioendotheliomatosis (RAE) is a rare angio-proliferative disease which commonly exists with some underlying systemic disease. RAE clinically presents as an ulcerated lesion which can be single or multifocal. It can also present as violaceous papules or plaques. The rarity of hobnail cell change in RAE can cause confusion with other vascular neoplasms which exhibit these changes like Endovascular papillary angioendothelioma also called Dabska Tumor, hobnail hemangioma and angiosarcoma etc. Most of the lesions of RAE are superficial in location but occurrence in deeper tissues is also known. We describe here a case of a young man presenting with a swelling in the first web space of right hand that has been diagnosed with arteriovenous malformation and was given the histological diagnosis of intravascular reactive angioendotheliomatosis with focal areas showing hobnail cell change. Also, all the lesions in differential diagnoses should be ruled out before making the diagnosis of RAE and before starting the treatment. Here, we review the usual presentation of RAE, with rare phenomenon of focal hobnail cell change which poses a diagnostic pitfall and the criteria to rule out other possible differential diagnosis that has to be taken into consideration in this setting.

Medical Science, 2022, 26, ms427e2414

ANALYSIS

Uncontrolled Hypertension and Associated Factors among Hypertensive Patients in Primary Health Care Centers in Jazan Region, Saudi Arabia: A Cross-Sectional Study

Nada M Hakami, Mona H Elmahdy, Salwa M Majrashi

Background: Hypertension is a serious public health problem that affects people of all ages. Hypertensive patients are at risk for several complications, including stroke and heart disease. Around one billion individuals are living with uncontrolled hypertension globally. This study determined the uncontrolled hypertension prevalence and associated factors among patients with hypertension in primary health care centers in Jazan Region, Saudi Arabia. *Methods:* We carried out an analytical cross-sectional study with a multistage sampling technique from January–March 2022. Data were collected using an interviewer-administered semi-structured questionnaire. Data were entered into and cleaned by IBM SPSS version 25. The Chi-square test was used to test for the presence of any statistically significant variation of the study variables. Multivariate analysis was performed for associated factors for uncontrolled hypertension. *Results:* We enrolled 354 participants and found that patients who were older, female, obese, had lower physical activity, had stress, and had lower levels of education were at higher risk of uncontrolled hypertension. The overall prevalence of uncontrolled hypertension in the study was 59.3%. *Conclusion and Recommendation:* Uncontrolled hypertension is still high in Jazan. The high number of individuals suffering from hypertension renders their lives at risk. These findings suggest that interventions to improve hypertension control should focus on these groups of patients and increase the effort of preventive services by establishing more preventive clinics in primary health care centers.

Medical Science, 2022, 26, ms428e2447

Assessment of public awareness towards skin disease in Jouf region, Saudi Arabia

Ziad Mansour Alshaalan, Ziyad Muharib N Alruwaili, Afrah Mohaimeed M Altaymani, Faris Fawaz S Alsharari, Rasha Harbi H Alashjaee, Maram Shafi A Alruwaili, Abdulelah Farhan O Alsharari

Background: In spite of the fact that skin disease is common, to evaluate the public's overall understanding, awareness and knowledge of skin disorders in Saudi Arabia, just one research was carried out. *Objective:* This study aims to assess public awareness toward dermatologic disorders in Jouf region and to assess prevalence of common dermatologic disorders among Saudi populace. *Methodology:* This is a cross-sectional study conducted among Saudi general population in Jouf, Saudi Arabia. Adult participants completed a self-administrated questionnaire to assess knowledge of skin diseases. All data was entered and analyzed

using SPSS 23. P-value less than 0.05 were considered for statistical significance. *Results:* The study included 453 participants, 73.5% were women. As for age, 51.4% of participants were more than 25 years old. Only 1.8% of participants think that all skin diseases are chronic while 16.1% think not. 2.9% think that all skin diseases are infectious while 20.8% think not, 2.4% think that all skin diseases are hereditary while 24.5% think not. Regarding prevalence of dermatologic disorders in the study participants, in addition to having 20.8% acne vulgaris, 3.5% had warts and 3.1% had psoriasis. Freckles made up 19.9% of the population, vitiligo 2%, albinism 5.1%, and claret stain 4.9% of the skin pigmentations. Only 0.2% of people had scabies, 11.5% had dandruff, and 50.1% suffered hair loss. *Conclusion:* The findings of the current study indicate that Saudi citizens generally have little understanding about prevalent dermatologic illnesses.

Medical Science, 2022, 26, ms429e2495

Endo and perio disease among dental practitioners in western region: Knowledge and awareness assessment, observational study

Ayman O Mandorah

Background: When it comes to the diagnosis & prognosis of the teeth involved, endodontic and periodontal diseases provide problems to the dental practitioner. This work was performed to assess knowledge and awareness about Endo-Perio lesion among dental practitioners in western region. *Methods:* This observational research was conducted in the Saudi Arabia from November 2021 to August 2022. The paper group included 623 aged above 18 years. The outcomes of this study will be analysed using the SPSS program using a pre-tested questionnaire. *Results:* This research consisted of 623 participants. 49.2% aged between 21- 25 ages and 45.4% between 26- 30 years old. Males made up 34.3% of the sample and 45.7% were females 55.1% of the participants in our study were familiar with Simon et al classifications of endo-perio lesions. *Actinomyces comitans* was cited by 53% of respondents as the most common bacterium linked to endo-perio lesions, followed by *T. denticola*, 16.8% *S. mutans*, and 14% *S. aureus*. The majority of responders (50%) identified the apical foramen as most direct pathways of communication between pulp and periodontal tissue. *Conclusion:* In summary, the research showed that Saudi Arabian dental practitioner has a medium degree of endo & perio lesions understanding. Organizing regular training and seminars sessions for dental practitioner working in hospitals and private clinics to strengthen their skills in the detection and management of endo & perio lesion may provide more fruitful outcomes.

Medical Science, 2022, 26, ms430e2507

Prevalence and pattern of hearing loss associated with using earphones among medical students in Al-Madinah region, kingdom of Saudi Arabia: A cross sectional study

Talal M Aljerais, Hamza A Alandijani, Noof M Alharbi, Lama S Alhumaidan, Mohammed J Almuayrifi, Aeshah M Alharbi, Zinab H Bohulaigah, Amal M Alharbi, Mohammed S Aloufi

Background: Hearing is a complex process of detecting and processing sound, and it is one of the five senses. Hearing can be impaired for many causes like exposure to external noises such as headphones, loud television sounds, and construction sites which eventually can lead to noise-induced hearing loss. *Methodology:* The participants were randomly selected using a proportional cluster sampling method in March 2022. The target population is medical students who use headphones in Al-Madinah region. The students completed a questionnaire distributed through online platforms. The estimated sample size was 222 students after applying inclusion and exclusion criteria. *Results:* A total of 222 respondents were included in this study. Almost half of them are aged between 22- 24 years. Females were 51.4%, which showed higher hearing loss scores. The prevalence of hearing problems among the study participants was found to be 34.2%. Moreover, we found that there is a significant association between the usage of earphones and hearing loss. Turning the volume up was significantly associated with hearing loss. In terms of how many days a week they use their earphones, most of the participants (67%) use them 3 days or more. About (67%) of participants rate themselves as having no hearing problems. The rest (33%) have hearing problems. *Conclusion:* According to the results of our study, medical students in the Al-Madinah region had a relatively high prevalence of hearing loss related to earphones usage.

Medical Science, 2022, 26, ms431e2510

Level of knowledge on preeclampsia symptoms, complications, and risk factors among women in Saudi Arabia: A cross sectional study

Abdulrahim Gari, Wafa Alshanqiti, Fatimah Alshanqiti, Rehab Alquzi, Rawan Alsamli, Reem Alqahtani

Background: Preeclampsia (PET) is a pregnancy complication that causes high blood pressure. It is still a major cause of maternal and fetal morbidity and mortality. In order to improve health outcomes, there is a greater need to improve PET education among women. This study determines the state of knowledge of preeclampsia among women who live in Makkah, Saudi Arabia. *Methods:* A cross sectional study was conducted among all eligible women who meet the inclusion criteria. The study took place from June to July 2022. A validated online questionnaire was used to collect data about participants' socio demographic characteristics, history of PET, and knowledge of PET, including signs and symptoms, risk factors, complications, timing, and severity. *Results:* A total of 378 women participated in the study. Almost half of the study population (51.9%) aged >35 years, and 73.3% were married. The mean knowledge score was 11.46 ± 2.54 , and only 4% of the participants had good knowledge about preeclampsia. Participants who had >4 previous pregnancies had a significantly higher percentage than those who had a good Knowledge level about preeclampsia

($p < 0.05$). Also, we found that participants with an age range from 26-35 years, who had a PET family history, had a significantly higher level of knowledge and those who had previously heard about preeclampsia ($p < 0.05$). *Conclusion:* The knowledge of PET among women in Makkah, Saudi Arabia, is remarkably low. Our findings demonstrated the need for an effective health education program that focuses on improving PET knowledge.

Medical Science, 2022, 26, ms432e2512

Prevalence of non-communicable diseases risk factors among first year medical college students at King Saud Bin Abdulaziz University for health sciences, Jeddah

Asmaa Alrefaie, Nourah Alageel, Eiman Saleh, Tahani Asiri, Rafeef Jarwan, Roaa Bakraa

Objective: To determine the prevalence of NCD risk factors among first-year medical college students at Jeddah's King Saud Bin Abdulaziz University for Health Sciences (KSAU-HS). *Duration of the study:* The study was completed in 8 months in 2021 (started from submitting the proposal in January, 2021). *Methods:* WHO STEP-wise approach to Surveillance (STEPS) of NCD risk factors was used, which includes three steps for assessing the risk factors: 1) Questionnaire 2) objective physical measurements 3) biochemical measurements. The estimated minimum sample size was calculated using the software Raosoft website, which were 227. To analyze the data, SPSS version 27.0 was used. *Results:* A total of (232) first-year medical students took part in the study. Data on sociodemographic factors, diet, salt intake, smoking, physical activity, and illness conditions were collected using a structured questionnaire. *Conclusion:* Results of the present study showed a high prevalence of NCDs risk factors among the participants. The study shows the importance to bring change in medical students' lifestyles to avoid the onset of NCDs later in life. Colleges need to assist students and intervene to lower these risk factors. Programs that promote healthy lifestyle and awareness are particularly essential for high school and college students. In all of schools and colleges in KSA, students should have access to sports and fitness facilities along with appropriate counseling and periodic screenings of students.

Medical Science, 2022, 26, ms433e2435

Predictive model for recurrent myocardial infarction in patients with type 2 diabetes mellitus

Mariia Koteliukh

Background: Recurrent myocardial infarction (MI) is one of the commonest and serious cardiovascular complications among diabetic patients. This study was planned to predict the recurrent MI development in diabetic patients using parameters of energy and adipokine metabolism. *Methods:* In total, 74 patients with type DM and acute MI were enrolled in the study. Measurements of serum adiponin, irisin, fatty acid binding protein 4 (FABP4) and C1q/TNF related protein 3 levels were performed using enzyme-linked immunosorbent assay. The study employed generalized linear mixed models (GLMMs) to predict recurrent MI development. *Results:* The accuracy of predicting the absence of recurrent MI during a year in diabetic patients was 98.4%, and the accuracy of predicting the probability of recurrent MI during a year in diabetic patients was 92.3%. The global model accuracy was 97.3%. *Conclusions:* GLMM has shown that the levels of irisin on day 14, insulin on day 1 and the combined effect of blood glucose on days 1 and 14 were negative prognostic factors. The total impact of FABP4 on day 1, HOMA-IR on day 1 and adiponin on day 14 had a positive prognostic value.

Medical Science, 2022, 26, ms434e2454

Comparing the effectiveness of treatment with radio frequency denervation, cryoablation and endoscopic debridement of the facet joints

Rapčanová Simona, Rapčan Róbert, Witkovsky Viktor, Kočan Ladislav, Poliak Lubomír, Lenčes Peter, Mláka Juraj, Griger Martin, Burianek Miroslav, Vašková Janka

Background: One of the main causes of chronic lower back pain is lumbar facet syndrome (LFS). It develops due to the damage of the facet joints and subsequent irritation of the adjacent sensory nerves. The diagnosis of LFS is based on comprehensive clinical examinations of the patient, evaluation of imaging diagnostic studies and nerve blockades under X-ray guidance. *Methods:* In a prospective observational multicenter clinical trial NCT04684303, we compared the clinical outcomes of three groups of patients who underwent denervation procedures of the zygapophyseal joints with either cryoablation therapy (n=48), radio frequency denervation (n=18) or endoscopic facet debridement (n=21). *Results:* Evaluation of changes in pain perception and quality of life were made by comparing the quality of life scale (EQ-VAS), and the numerical pain scale, which showed a statistically significant improvement ($p < 0.001$) in 3 months follow up after procedure. *Conclusion:* Study showed an equivalent effectiveness of endoscopic facet joint debridement compared to radio frequency denervation and cryoablation of the dorsal nerve branch, with persistent outcome.

Medical Science, 2022, 26, ms435e2469

Self reported prevalence of eczema and associated risk factors among under five children in Northern Saudi Arabia: A population based cross sectional study

Ziad Mansour Alshaalan, Maram Shafi Alruwaili

Introduction: Eczema is a very common dermatological disorder that affects children at a high rate and this condition can alter the quality of life by disturbing the sleep activity, cause anxiety, and depressive manifestations. The present survey aimed to assess the

self reported prevalence of eczema and its associated factors among the under five aged children. *Methodology:* This is a cross sectional study conducted at the northern regions of Saudi Arabia (KSA). By using consecutive sampling method, 578 randomly selected participants from the northern KSA completed the pretested data collection. We have applied logistic regression analysis to identify the predictors for the self reported eczema. *Results:* The results revealed that Eczema among the children was significantly related to mother's education (OR [95% CI] = 1.91 [1.23 – 2.57], $p = 0.008$), family history of bronchial asthma (OR [95% CI] = 0.71 [0.58 – 0.93], $p = 0.013$), and family history of eczema (OR [95% CI] = 4.32 [2.61 – 6.96], $p = 0.001$). Regarding environmental factors, eczema was significantly related to presence of pet animals in the house (OR [95% CI] = 1.68 [1.32 – 2.71], $p = 0.001$) and history of food allergy (OR [95% CI] = 3.71 [2.33 – 5.83], $p < 0.001$). *Conclusion:* The present survey's results recommend that the concerned authorities to plan focused health awareness raising campaigns for the public regarding eczema and predisposing factors. Furthermore, exploratory research is warranted to identify the region specific requirements for health education programs.

Medical Science, 2022, 26, ms436e2511

Prevalence and risk factor of gastro-esophageal reflux disease among university student in Saudi Arabia

Lotfi Fahmi Issa, Turki Alharthi, Thamer Alsufyani, Abdulrhman Alsufyani, Awadh Alasmari, Humood Alshareef, Afnan Almurashi

Background: Gastro-esophageal reflux disease is among the highest prevalent disorders in Europe, the United States as well as in Saudi Arabia. It has an impact on quality of life and can lead to serious complications. The objectives of this study were to determine the prevalent of Gastro-esophageal reflux disease among college students and the risk factors associated with it. *Methods:* A cross sectional study was conducted among university students in Saudi Arabia using a multi stage random sample technique. An online valid questionnaire including demographic data, and questions related to risk factors of GERD was used for data collection. Collected data was entered and analyzed using SPSS program. *Results:* Our total sample was 246 participants. The prevalent of GERD among participants were 45 (18.3%). Male and female were (54.1%), (45.9%) respectively. The average age was 21.37 years. The only statistically significant factor was family history (45.9%, 0.015 p -value). In contrast, there was no association between GERD's prevalence and gender, age, and any other risk factor ($P > 0.05$). *Conclusion:* Our investigation discovered that university students in Saudi Arabia had a lower prevalence of GERD than the general population. The only risk factor we found that can cause GERD in university students was family history. In our sample, we weren't able to identify any additional risk factors or protective factors related to GERD.

Medical Science, 2022, 26, ms437e2513

RESEARCH

Cross-culture adaptation and validation of the Arabic version of duruöz's hand index for people with carpal tunnel syndrome

Wael Alghamdi

Background and Aims: Carpal tunnel syndrome is a clinical syndrome resulting from the wrist's median nerve being compressed, which resulting in function impairment and pain at the wrist. This study aims to translate and validate the Arabic version of the Duruöz's Hand Index in patients with carpal tunnel syndrome. *Methods:* Cross cultural adaptation was performed according to guidelines. Seventy-one Arabic participants with carpal tunnel syndrome were recruited. Test retest reliability was assessed after average of two weeks by measuring the interclass correlation coefficient. Cronbach's Alpha was performed to analyse the internal consistency. To assess construct validity; Person correlation coefficient with Boston Carpal Tunnel Questionnaire was calculated. *Results:* Arabic version of the Duruöz's Hand Index had excellent internal consistency; Cronbach's Alpha was 0.95 for the overall of the Duruöz's Hand Index. Test-retest reliability was excellent. Correlation with the Boston Carpal Tunnel Questionnaire reflects an excellent validity. *Conclusions:* The Arabic translation of the Duruöz's Hand Index is reliable, valid, and reproducible. The Arabic version is now suitable for use in Arabic-speaking participants with carpal tunnel syndrome.

Medical Science, 2022, 26, ms438e2395

ANALYSIS

Prevalence of self medication among Umm Al-Qura medical students

Mokhtar Shatla, Alaa Ahmed, Raghad Almasoudi, Omnia Kutbi, Nedaa Alsulaimani, Reem Brashi

Background: Self medication is the use of pharmacological drugs without a prescription. The prevalence among medical students was found to be higher reaching 70.1%. *Objective:* To evaluate the prevalence of self-medication, probable reasons, symptoms, attitude, and source of advice among medical students at Umm Al-Qura University in Makkah, Saudi Arabia. *Methods:* This is a cross sectional study that was carried out among medical students in Makkah, Saudi Arabia. All medical students were eligible to participate in the study using a snowball sampling technique until the sample size was satisfied. The data analysis was done using the statistical package for the social sciences (SPSS, version 26.0). *Results:* A total of (474) responses were analyzed with a mean age of 21.7 years $\pm$ 1.89 years and two thirds were females 301 (63.5%). The prevalence of self medication practice among students was 282 (59.5%). From the students' perspective, the conditions that cause self medication practice include cold 232 (82.3%), sore throat

222 (78.7%), headache 215 (76.2%), and cough 176 (62.4%). One quarter (24.1%) of self medicated and 20 (4.2%) of non medicated respondents do encourage family and friends to self-medicate. The most common reason for self-medication reported was "no need to visit the doctor for a minor disease" followed by "knowledge from previous experience" (80.1% and 67.4%, respectively). *Conclusion:* The prevalence of self medication among medical students was found to be (63.5%). The majority of medical students do not advice family and friends to self medicate, while they encourage the behavior among those with higher levels of knowledge.

Medical Science, 2022, 26, ms439e2381

Assessment of coagulation profile in patients with breast cancer in Saudi Arabia

Osama Abdulaziz

Background: The most common malignancy in women is breast cancer. It is associated with significant morbidity and mortality. One of the under estimated complications with breast cancer is the abnormalities occurring in the coagulation profile of patients. *Objective:* The aim of the study is to assess the coagulation profile of patients with breast cancer in Saudi Arabia. *Design and Setting:* This is a retrospective study conducted in kingdom of Saudi Arabia, which involved collecting data from patients' records. Included demographic information of patients, and information on their type of cancer and the results of laboratory investigations. Data analysis was executed through Graph pad prism and SPSS. *Results:* Data was collected from records of 105 patients. 88.6% were females; mean age 56.9 ± 14.5 years old, 60% were in the age group between 41 to 60. 95.2% of patients had cancer, where 31.4% of the patients had breast cancer, and 41% had invasive duct carcinoma, while 3.8% had infiltrating duct carcinoma. 18.1% had high random blood glucose, while 3.8% had high PTT values, and 16.2% had high PT levels, while 2.9% had high INR levels. Random blood glucose (p-value=0.03), PTT (p-value=0.043), PT (p-value<0.001) and INR (p-value<0.001) were significantly higher in breast cancer patients. Also, lower proportion of breast cancer patients had normal random blood glucose (p-value=0.009), PT (p-value=0.029) and INR (p-value=0.025). *Conclusion:* Breast cancer patients are more common to have coagulation abnormalities in terms of elevated bleeding risk. Future studies should examine the other coagulation factors in such patient population.

Medical Science, 2022, 26, ms440e2464

Methodological approach of weighing the prevalence of depression in heart failure patients: A case control study

Fayez El Sayed El Shaer, Abdulaziz S Almasoud, Salem Mohammed Basalem, Faisal Ahmed Alrayes, Abdulmalik Abdulaziz Alharbi, Banan Sameer Alqady, Taibah Abdullah Alzaid, Mohammed Ali Alqhtani, Naif Saad Almutairi

Background: People with heart failure may have associated comorbidities and illnesses, which are key risk factors for depression. In a tertiary care facility in Riyadh, Saudi Arabia, the relationship between heart failure, depression, and associated comorbidities will be methodologically evaluated. *Methods:* From January to July 2022, a case-control research was carried out. Patients who had heart failure were considered cases, whereas healthy individuals attending the primary care facility were considered as controls. The exposure was a prior history of heart failure as assessed by the PHQ-9 (Patient Health Questionnaire 9). Score was calculated, and depression severity was categorized (mild, moderate and severe). *Results:* A total of 800 participants were approached, out of whom 600 fulfilled the inclusion criteria and consented to participate, 420 (70%) participants were enrolled as cases and 180 (30%) as controls. For cases vs controls, mean (SD) age was 59.512 ± 15.417 and 31.06 ± 5.992 years, 265 (63.1%) and 75 (41.7%) were males, respectively. Odds ratio (OR) (95% CI) of having heart failure and being depressed (PHQ-9) was 3.02 (2.44–3.83), p value <0.0001. The association remained significant even after adjusting for gender and age in Model 1 OR (95% CI): 2.82 (2.27–3.60), p value <0.0001, hypertension and stroke in Model 2 OR (95% CI): 2.87 (2.29–3.71), p value <0.0001 and malignancy and COPD in Model 3 OR (95% CI): 2.94 (2.31–3.85), p value <0.0001. *Conclusion:* Heart failure and depression had direct relation especially in individuals with certain associated comorbidities as hypertension, stroke, cancer, COPD, and older male patients.

Medical Science, 2022, 26, ms441e2487