كلية العلوم الطبية المساعدة
Faculty of Allied Health Sciences

15ᵗʰ Scientific Poster Day

2022

Under the Patronage of
President of
Kuwait University

Professor
Yousef Al Roomi

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Assistant Vice President of External Research Collaboration & Consultation

Dr. Haneen Al-Ghabra

Dr. Haneen Shafeeq Al-Ghabra is Assistant Vice President of External Research Collaboration & Consultation of the Research Sector at Kuwait University and an Associate Professor at the Department of Mass Communication at Kuwait University. Dr. Haneen's methodological research is conducted through rhetorical criticism, ethnography and auto ethnography. She is author of Muslim Women and White Femininity: Reenactment and Resistance (Nov 2018). Dr. Haneen has also won numerous worldwide awards for her publications and books and most recently was the recipient of the young researcher award at Kuwait University and the chapter of the year award at the National Communication Association's intercultural division (USA). She has been featured on more than six top paper panels and has won top awards more than eight times. Dr. Haneen also has eight years of work experience both in the government and private sector in Kuwait in Public relations and campaign planning.

Dean's Message

Prof. Suad M. AlFadhli

Dear Colleagues and Students,

It gives me great pleasure to welcome you all to this auspicious event of the 15th Scientific Poster Day hosted by the Faculty of Allied Health Sciences to focus on the research activities of the undergraduate and graduate students in our faculty.
I am sure that all of you who are assembled here will agree with me in saying that research is the key to success in one's academic career.
Research being an essential component of health education is also included as an essential course (Research Project) in the curricula for all the departments of our faculty.

With the multiple health programs, FAHS is a fertile place for multidisciplinary health research. The vision of our faculty is to have experts from different Allied professions collaborate and work towards a common research theme. We would like to reflect this multidisciplinary research in our academic curricula too.

My dear Students, Today is your day! This day you are harvesting your hard work. The Scientific Poster Day is a platform for our students to present their research findings. This year we have received 66 abstracts, mainly from the students of the Faculty of Allied Health Sciences.
The success of the Scientific Poster Day at our Faculty for the past 15 years reflects on the intensive nature of the research carried out by our undergraduates and postgraduate students and the teamwork and commitment of the faculty members who supervised their Research Projects.

Dean's Message

Prof. Suad M. AlFadhli

I believe that such events recognize the invaluable efforts of the students as well as their supervisors. It is noteworthy to say that the FAHS students were found to be very keen and enthusiastic to do their research in the clinical sites of various disciplines.

I am sure that this event will enrich us all scientifically and I hope that it will lead to fruitful research collaborations. Thank you all for accepting our invitation to join us in the inauguration of the 15th Scientific Poster Day in our Faculty.

I would sincerely like to welcome Prof. Yousif Al Roomi, President, Kuwait University, and Dr. Haneen Al Ghabra, Assistant Vice President for External Research Collaboration & Consultation, to this event and thank them for their support.

Last but not the least, I welcome all our students, all our staff and former Graduates of the FAHS who wholeheartedly participated towards the success of this year's Scientific Poster Day.

Thank you

Best wishes
Prof. Suad M. AlFadhli
Dean
Faculty of Allied Health Sciences
Kuwait University

Vice Dean's Message

Dr. Rana Al-Awadhi

Greetings!

It gives me great pleasure to welcome you all to the **15th Scientific Poster Day** hosted by the Faculty of Allied Health Sciences; my third as the Vice Dean of Research & Postgraduate Studies.

Strong research is essential for academic excellence and hence it is an added privilege for the Faculty of Allied Health Sciences to host the Scientific Poster Day for the fifteenth year, as the celebration of students' scholarly work with the faculty mentor support.

This event provides ambitious, intellectually motivated undergraduate and post-graduate students the opportunity to present and defend their original research or creative work among colleagues, faculty, family, and friends. The Posters displayed promotes conversation between researchers and audience members, thus making it a lively event.

At this opportunity, let me thank the Dean of the Faculty, the Organizing Committee members of the 15th Faculty of Allied Health Sciences Scientific Poster Day, the Scientific Committee members, the Faculty members, the support staff, and the Kuwait University Administration for making this year's event a success.

Wishing all participants all the very best in their future endeavors.

R. Al-Awadhi
Vice Dean for Research & Postgraduate Studies
Faculty of Allied Health Sciences

Keynote Speaker

Prof. Khalid AlHarbi

Prof. Khalid Khalaf AlHarbi is professor and Consultant of Medical Molecular Genetics and the Chairman of Saudi Society of Clinical Laboratory Sciences (CLS). Dean College of Nursing from June 2010-2015 at KSU. Chairman of Clinical Laboratory Sciences in College of Applied Medical Sciences in King Saud University (2005- 2009).

He received his master's in Medical Molecular Genetics from University of Aberdeen, UK (2000) and PhD in Human Genetics from University of Southampton, UK (2005). His research is devoted to the of Human Molecular Genetics. He is specifically interested in Human Mutations screening including the MC4R gene involved in obesity and the LDLR gene related to familial Hypercholesterolemia. Since the beginning of his research from 2005, he has been very dedicated on chronic diseases, particularly obesity. In addition, he is focused on other multifactorial disorders, such as familial hypercholesterolemia and type 2 diabetes, where molecular mechanisms are concerned. He is very active in research and has 83 publications in peer reviewed scientific journals. Prof. AlHarbi has an extensive experience in administrative positions. He is the head of different board and committees in CLS departments and in College of Applied Medical Sciences.

Organising Committee

Member	Department
Prof. Suad AlFadhli	*Dean of Faculty of Allied Health Sciences*
Dr. Rana Al-Awadhi	*Vice Dean, Research and Postgraduate Studies*
Dr. Nouf Al-Ajmi	*MLS*
Ms. Hanadi Al-Humaidi	*HIIM*
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Ms. Nourah Alghnnam	*Public Relations*
Eng. Ashwaq Derie	*IT*
Eng. Zainab Al-Ameer	*IT*

ABSTRACTS

Poster Links Provided

Health Informatics and Information Management (HIIM)

Awarded Posters HIIM

No.	Student Name	Title
HIIM-1	Nada Fahad Alazemi	Health Care Provider Perceptions Using Tablet Technology in The Hospital
HIIM-6	Latifah Alnasrallah	The effectiveness of using Patient Health Care Applications of Kuwait Ministry of Health

HEALTH CARE PROVIDER PERCEPTIONS USING TABLET TECHNOLOGY IN THE HOSPITAL

Presenter: Nada Fahad Alazemi
Supervisor: Naser Alenezi

Health Informatics and information Management,
Faculty of Allied Health Sciences, Kuwait University

Abstract:

Today, doctors and nurses use handheld devices to record patients' real-time data and instantly update their medical history. This makes more accurate and more efficient diagnoses and treatments. Centralization of critical patient data and lab results has really improved the quality of healthcare. Technology helps contribute to patient-centered care by fostering communication between providers and patients via online portals, text messaging, and email. It also increases access to information such as online medical records, which can improve self-monitoring and patient convenience. Modern technology has paved the way for multi-functional devices like the smartwatch and the smartphone. Computers are increasingly faster, more portable, and higher-powered than ever before. With all of these revolutions, technology has also made our lives easier, faster, better, and more fun. Get Insightful MRI Scans, X-Rays, CT Scans, and Ultrasounds Being able to find out whether or not someone has an injury can be seen with the help of these perceptive technologies. Although many can make a prediction, diagnosing an injury with technology that sees inside of you is easier. Through the use of technology in medical research, scientists have been able to examine diseases on a cellular level and produce antibodies against them. Artificial intelligence (AI), block chain, voice search, catboats and virtual reality (VR) are among the most promising health technologies in 2020. Technology is important because it makes you feel more secure with every area in life for both personal and business reasons.

Mobile, user-friendly and accessible, tablet technology is making its way into a wealth of sectors, with healthcare among the major industries where its benefits are being realised. Used everywhere from hospitals to virtual health and general practitioner's offices, tablets have the potential to revolutionise the way healthcare professionals do their jobs. Two of the professions enjoying the very real benefits of tablet technology are nurses and doctors, who now have access to information on-the-go along with a research tool at their fingertips that can also allow them to virtually assess and liaise with patients

Health Informatics and Information Management Role in Health Sector During Covid-19

Aseel Al-Enezi Supervised by Abdulmajeed Al-Hashmi

Health informatics and information management
Faculty of Allied Health Sciences, Kuwait University

INTRODUCTION

The coronavirus disease (Covid-19) pandemic has put governments and health care systems under lots of pressures and challenges whereby all aspects were converted to online and relied completely on the information system and technology. The health informatics and information management role has been starring the pandemic as the need for building a firm system online with all the medical requirements filled in, in a way that is comfortable for doctors, nurses, administrative, and patients to use and efficient to fight the pandemic. Healthcare sector was among the most industries to pose enormous interest in building a firm information system via technology department during the whole pandemic till date.

MAIN BODY

The collected secondary data from all the scholar articles shows that the health information system department role in the healthcare industry is becoming important and major since the Covid-19 pandemic impacted the international world and transferred most of the part to online stating such as communication between staff and with patients, information and files archive, facilities management, inventory and warehouse logistics management, services and products offering and delivery, and more of the healthcare industry value chain were converted to online. Therefore, the information system department was urgently required and counted on heavily during the pandemic till date where it became a major section for technology formed system. One of the key roles of the health informatics and information management major is to develop an online system where all the medical process take place, starting from receiving medicines and stocking it, to taking appointments, to conducting medical examinations, to registering medicines and treatments for the patient in a way that is convenient to both the medical staff and patients.

CONCLUSION

Health informatics and information management major has become a key department in healthcare sector after the Covid-19 pandemic as almost everything around the globe turned to online, and the need for technology and information system specifically in this sector became an urgent and must. In order to share information, to count and measure the number of causalities and death, and to systemize all healthcare services, facilities, and products.

KEYWORDS:

Health-Informatics, Covid19, Information-management

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The Impact of Covid-19 on online service at healthcare in Kuwait

Malak Alenezi and Supervisor Dr.Nasser Alenezi

Health Informatics and Information Management Department
Faculty of Allied Health Sciences, Kuwait University

Introduction

The Covid-19 pandemic impacts was not only limited to the health area, but it helped the online transformation of all areas and specifically to what serve the heath at the top priority. Online service was already available in many areas such as in the healthcare field but was not focused at before the pandemic. Today the online service at the healthcare industry has improved and played a key role in spreading awareness of the virus, protecting people from getting the virus, measuring the number and status of the patients, and managing all people's healthcare services along with the hospital and medical staff as well.

Main Body

The scholar reviewed academic articles collected with similar topic to the study shows that Kuwait healthcare industry was already performing a good online service that have been helping both the hospitals with the administration and medical staff, and the patients in all their medical visit and appointment before the pandemic occurs. That performance has helped the online service to evolve when the pandemic happened as the online service people were ready to convert all the transactions and operations to online. Although it wasn't as easy as it sounds but it was smoother due to their previous experience in the field. However, there were applications and websites that were introduced to generate appointments, medical records, telecommunications, measurements, follow-ups, and other transactions all online and official. Coronavirus disease has been named as Covid-19 is a pandemic that took place in 2019 and till this date people are suffering from and governments are struggling to fight.

Conclusion

In conclusion, the data collected from the scholarly reviewed academic research shows that healthcare service has transformed to an advance online system with all functions and transactions performed online have occurred after the pandemic, even when the online service in the healthcare industry was already performing good before the virus. However, the transformation occurred have helped the government reaches its health wise goals

Keywords

Covid-19, Healthcare, Online Healthcare

View
Poster

Difference between HIIM and Health informatics

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Faculty of Allied Health Sciences,

Kuwait University, Kuwait

INTRODUCTION

Health informatics is a merge of science and engineering major that is focusing on developing methods and technologies for the obtaining and processing of patients' data, formed in different sources and modules such as electronic health records, diagnostic test results, and medical scans. The main role of the health informatics is to be studying the design, development, and application of computerized innovations aiming to improve healthcare. Meanwhile, the health informatics and information management is focused on the information technology needed to store and retrieve data of the patients in an accurate and secure way along with people and process management.

MAIN BODY

HIIM is the whole sum of developing computerized healthcare while at the same time connecting the system with the people working on it and the people use it such as doctors, nurses, admin staff, and the patients. HIIM is more general than health informatics as the last can be consider part of it. Few of the articles reviewed were discussing the health informatics major and role with mentioning the advantages and disadvantages, while other articles reviewed were discussing the health information management with the definition, job roles and description, and benefits. Meanwhile some of the articles conducted a comparison between both majors HI and HIM and declare the fact that HI is the computerized and systematic part of HIM which is the overall management of the technology and information merged in one system and specialized in the medical field.

CONCLUSION

Health informatics is part of the health informatics and information management specialization. Health informatics is the systemized part where the computerization of the medical data and process takes part, while the health informatics and information management are the overall major where the administration of managing the computerized system, the data management, and the application along with the design and the objectives are all exists. HIIM is the unit where healthcare providers manage all their operations, transactions, inventories, appointments, processers, and data.

KEYWORDS:

HIIM, Health informatics, Health information management

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The Effect of Telemedicine on Patients During Covid-19 Pandemic

Hessa Almutiri supervised by Dr. Fawzi Alkhawari and Ms. Hanadi Alhumaidi
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Faculty of Allied Health Sciences, Kuwait University

INTRODUCTION

The telemedicine in Kuwait before the pandemic was in a good shape as the healthcare services were already built on a solid systematical foundation. Though, when the covid-19 pandemic hit the country, the system must be improved and applied in official manner which was done in the most convenient way. The medical staff and the patients were struggling to work on the current system but later they found it easy and more convenient comparing to the old system specially that it saves time and effort.

MAIN BODY

Reviewing the academic articles collected it has been found that all agree to few points which states that the pandemic has its advantages on improving and developing the telemedicine field and increase people's awareness, while the disadvantage is the fact that the telemedicine field has limitations in some cases. Although the presence of a pandemic is an unfortunate, but it has some advantages such as the opportunity to set up an infrastructure for providing care using TM. Meanwhile, telemedicine or mobile health was well-positioned during the pandemic time to reduce potential disease spread and prevent overloading of the healthcare system through at-home COVID-19 screening, diagnosis, and monitoring. As a fact, disasters and pandemics pose unique challenges to health care delivery, as telehealth will not solve them all, it's well suited for scenarios in which infrastructure remains intact and clinicians are available to see patients. However, COVID-19 has caused rapid expansion in telemedicine. The findings of one of the studies suggest that telemedicine and virtual software are capable of decreasing emergency room visits, safeguarding healthcare resources, and lessening the spread of COVID-19 by remotely treating patients during and after the COVID-19 pandemic. While previously TH was mainly used for primary care needs, specialized and urgent care health is now being utilized more than ever before.

CONCLUSION

At the end, although telemedicine existed before in Kuwait, but the 2020 pandemic has led to significantly improvements leading into the next generation of telemedicine. The telemedicine field is now improving and both medical staff and patients are satisfied with it, so in the future it supposed to develop and improve more using the advanced technology.

KEYWORDS: Telemedicine – Covid-19 – Pandemic

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The effectiveness of using Patient Health Care Applications of Kuwait Ministry of Health

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Faculty of Allied Health Sciences, Kuwait University

History: In 1996 Health Insurance and Accountability gave the patients the Right to access and obtain a copy of their own Medical Records, however, because of Medical Records Manual System which was used on 90's in many countries specially in Kuwait, it was hard to give patients their Right with keeping the Records Confidential with preventing a non-Authorized users from accessing the Medical Records.

Discussions: Kuwait was one of countries that establish application from scratch in order to serves patients and travelers that exposed to corona Virus which are (Shlounk/Immune/MOH.GOV.KW).

Many studies assure that these Patients Portals Applications helps in providing patient the needed care, but it also helps Health Care workers to deliver more patients Care plans and treatments Despite their stick schedules and the great number of patients that needed a physician's review.

In discovering Patient Characteristics, Gender, Age and Education level and the effectiveness the ease-of-use applications Users and Nonusers we noted the impact of these patient's characteristics that influence on being a patient portal user.

Results: The Majority of users were between the ages of 25 and 34 years had greater disease severity and more urgent admissions.

Studies have been shows that Users who have higher incomes or be privately insured are using patient's portals application more than non-users.

Education level impacts as educated tended to be patient portal applications users more than non-educated users.

 The more applications users-friendly the more productivity was increased with fewer missed appointments and administrative efficiencies.

The Degree of user-friendly, the less features of communications tracking patients conditions patients Age, the level of severity of patient's conditions can be Barriers in Using Patient Portals Applications.

Conclusions: Suggest: implementing a new Application and design it from the very beginning instead of trying to fix the current telemedicine app in Kuwait that have a fully information Records as same as the Manual Medical Record that have features: user-friendly, tracking patient's locations, applying a communication between physicians and patient, medication management and lab result.

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Medical Laboratory Sciences (MLS)

Awarded Posters MLS

No.	Student Name	Title
MLS-17	Reem Alshammari	The Knowledge and Experience of MOH Primary Health Care Physicians Regarding Intestinal Parasitic Infections in Kuwait
MLS-25	Alaa Alabdallah	Prevalence of Candida Auris in ICU patients during the COVID-19 pandemic in Kuwait
MLS-26	Hajar Mawazi	Concordance rate between SARS-CoV-2 PCR and rapid antigen tests (RATs)

Minerals Levels in Hyperglycemic Population in Kuwait.

Raghad Abdallah, Sarah Alaazmi, Danah Almenaye, and Fatma AlRashidi

Department Of Medical Laboratory Sciences
Faculty of Allied Health Science, Kuwait University, Kuwait.

INTRODUCTION

Imbalanced levels of trace elements have been observed in diabetic patients and are considered a risk factor for diabetes development. Furthermore, several studies conducted by different populations have proved the association between minerals imbalance and hyperglycemia. Therefore, this study aimed to assess the association between serum minerals concentration and high hemoglobin A1c in Kuwait.

METHODS

Serum samples from 22 uncontrolled hyperglycemic patients and 22 age- and gender-matched non-diabetic control samples from Kuwait general hospitals. Serum samples were tested for renal, liver, and lipid profiles using the automated AU5800 system to exclude comorbidity. In addition, serum electrolytes such as Sodium (Na), Potassium (K), Calcium (Ca), and Phosphate (P) were measured using the same system. Samples were analyzed for the concentration of Copper (Cu), Cobalt (Co), and Arsenic (As) using an inductively coupled plasma mass spectrometer (ICP-MS). The levels of minerals were non-normally distributed; therefore, non-parametric statistics of the Mann-Whitney U test was used. Any difference between groups at $p < 0.05$ was considered statistically significant.

RESULTS

The results showed that Cu level was significantly increased in hyperglycemic patients compared with non-diabetic controls. No association has been observed in the level of Co or As. When data were categorized based on gender, Further, our data showed that Cu is significantly higher in the hyperglycemic female than in the male group. Further, Co was significantly elevated in the male hyperglycemia group but not in the control male group. No other significant changes were observed. Furthermore, a significant downregulation was found in Cl and Na serum levels. There was no statically significant difference in serum Ca, P, or K levels in both studied groups.

CONCLUSION

This study shed light on the association between minerals and diabetes mellites in Kuwait. We aim in the future to increase the number of subjects in each group to get a robust and more explicit association. Further, more minerals and trace elements will be included.

KEYWORDS:
Diabetes, Minerals, HbA1c

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Evaluating the Presence of Antibacterial Properties in Local Honey

Student name: Amal Almtotah   Supervised by: Prof. Ali Dashti

Introduction: wound infections is considered a major problem that face patients in the hospitals because wounds provide the bacteria with special environment needed for colonization. Broad spectrum antibiotics are used to treat those infections, which will increase the chance of developing antibiotics resistant due to over use . The negative impact of the resistance will destroy the treatment plan and increase the treatment cost as well. For these reasons, it is important to search about alternative treatment that gives the same results with less adverse affects. Honey was used through out the time to treat wounds by forming a barrier responsible for protecting and inducing the production of cytokines from monocytes. In addition to that the antibacterial activity of honey is discussed and proved against a wide range of bacteria, including multi drug resistant bacteria and some of fungal species. Researcher were able to prove the honey's synergistic affect in combination with antibiotics. The aim from this study is to test the antibacterial activity of Kuwaiti sider honey and against *Pseudomonas aeruginosa, staphylococcus aureus, Streptococcus pyogenes,* and *Klebsiella pneumonia*, and test its affect on the activity of selected antibiotics.

Materials and Methodology : Kuwaiti Sider honey from Al-owaid company was 75% diluted and tested against *S. pyogenes, S. aureus, P.aeruginosa,* and *K. pneumonia,* which were obtained from the microbiology lab at the College of Allied Health Sciences- Kuwait University via the use of the disc diffusion method. Commercially available antibiotics including Penicillin, Clindamycin, Vancomycin, Cefoxitin, Erythromycin, Ampicillin, Ceftazidime, Imipenem, Ciprofloxacin, and Cephalosporin were also used.

Results: the Kuwaiti Sider honey did not show any antibacterial activity and did not effect the activity of antibiotics used against any of the four types of bacteria.

Conclusion: As several studies provide interesting informations and prove the antibacterial activity of honey, it is important to test the antibacterial activity of other local honeys using the best methods and take into account the factors that affect their antibacterial activity .

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Association Testing of Erythropoietin (EPO) gene Variants rs1617640 Between Diabetic Nephropathy & Diabetic type 2 Using single nucleotide polymorphism (SNPs)

Reem Amutairi , Dr.Maisa Alwohhaib
Medical Laboratory Sciences Faculty of Allied Health Sciences, Kuwait University

Abstract: Kuwait is one of the countries with the highest prevalence of type 2 diabetes in the world. Diabetes mellitus type 2 is the most prevalent type of DM. Diabetic nephropathy (DN) is the most common complication of type 2 diabetes and is the leading cause of end-stage renal disease. Furthermore, single nucleotide polymorphisms (SNP) in the promoter place of the erythropoietin (EPO) gene have also been related to proliferative and end-stage renal disease. We aimed to investigate whether the EPO rs1617640 was associated with diabetic nephropathy compared to diabetes without nephropathy.

Methods: The EPO gene was genotyped using the single nucleotide polymorphism (SNP) method in two groups of diabetic patients: 38 with nephropathy and 64 without. **Results:** The frequency of the risk allele T of the EPO gene was high in both groups. The frequency of the T allele was 96% in the nephropathy group and 92% in the diabetic without nephropathy. P-value was not shown for the EPO SNPs because the number of the non- risk allele was too small for a reliable estimation. The lowest probability value was observed 0.1292 , the upper probability value was 1.8204 and the odds ratio was 0.4849.

Conclusions: The investigation of the EPO gene showed the highest risk allele in both groups of diabetic patients. There was no significant association found between the EPO risk allele frequencies and any of the diabetic groups.The results show the EPO gene SNP rs1617640 was high in both groups which makes that specific SNP a characteristic for diabetes in general. To confirm this result a larger group of patients must be invested. In our study the small number of patients studied is one of our study's limitations.

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Compliance of Laboratory Workers of Followed Updated Guidelines of Disinfection in Clinical Laboratories: A survey of knowledge of A Medical Team from Kuwait.

Manar Alkhaldi , Dr. Norya Almaraghi
Department of Medical Laboratory Science, Faculty of Allied Health Science,
Kuwait University**.**

Introduction

The importance of disinfection, sterilization, cleaning, and asepsis were also highlighted during times of pandemics, playing a major role in reducing its spread and transmission. Generally, disinfection is performed following recommended upon certain contact time (depending on the instrument, surfacto be disinfected and the microorganisms dealt with in the allocated laboratory.

Methods

The survey was composed of two main sections: demographic information of the lab technicians and the awareness of disinfection protocols. The first section of the survey; demographic information of lab technicians was concerned with the lab technicians age, gender, place of work, academic degree, assigned work, years of experience, training on biosafety, awareness of disinfection, and awareness of infection routes. The other section of survey included question revealing general information of technician's awareness of the disinfection protocols.

Results

As for applicant's educational levels, the highest number of applicants held bachelor's degrees 41 (56.9%). most applicants had working experience in microbiology/immunology laboratories 28 (38.9%). Most participants had less than three years of experience 41 (56.9%). most were enrolled into training programs on biosafety 66 (91.7%). Awareness of disinfection excellent was 31 (43.1%). Most of the participants in this study indicated disinfecting their working table daily 56 (77.8%). Only one participant disinfected their working table once a month, and 7 (9.7%) did not disinfect their working table at all.

Conclusion

Lab technicians have a high level of awareness, and younger generations appear to be more interested in this field of study and have a better understanding of the profession. Different laboratory items, such as lab working tables, lab coats, gloves, and others, can be a source of infection. However, the main source of infection is the lab personnel themselves, and a lack of disinfection awareness is the tipping point.

Keywords Disinfections, sterilization, awareness.

View

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Catfish Epidermal Preparation Accelerates Pancreatic Cells Regeneration in Diabetic Induced Rat Model

Athoub Alazemi

Medical Laboratory Sciences. Faculty of Allied Health Sciences, Kuwait University

Background: Diabetes is a chronic disease marked by high blood sugar level, either because the body doesn't produce enough insulin, or because body cells do not respond to the insulin that is produced. Many natural components have been previously investigated to treat this problem, however, nothing was done on the soluble protein fraction B (SPF-FB), which was derived from Arabian Gulf catfish (Arius bilineatus, Val) epidermal gel secretion (PCEGS)and found that it has many beneficial biological properties seen in cell culture level as anti-inflammatory and anti-cancerous.

Aim: To study the histological effect of SPF-FB of PCEGSon the pancreas tissue of diabetic rats, using routine histological techniques and immunohistochemistry.

Methods: 4 groups of male Wister rats assigned into group 1 (control; n = 3), group 2 (control + SPF-FB; n = 3), group 3 (diabetic; n = 3), and group 4 (diabetic + SPF-FB; n = 3). The induction of diabetes was done using STZ in groups 3 and 4. SPF-FB was allied intraperitoneal for ten weeks. Tissue was harvested, processed and stained using routine and immunohistochemistry against CD31 and CD68.

Results: CD31 and CD68 both showed weak expression in group 1 and 3 and intermediate in group 2 and 4. The number of Islets was high in group 4 and almost absent in group 3.

Conclusion: This is the first work that involved the effect of SPF-FB on diabetic induced Rats. SPF-FB treatment has improved that cellular development in diabetic pancreas after being damaged. Further work needs to be done including increasing the number of sample and adding more time to see further effect of the SPF-FB substance and check the effect on other biological and biochemical parameters.

The effects of anabolic androgenic steroids and protein supplements abuse on liver function and male hormones

Zahraa Abullah[1], Fatima Al Yatama[2]

[1]Medical Laboratory Science, Faculty of Allied Health, Kuwait University

Background

Anabolic steroids androgenic (AAS) and protein supplements became wildly common among creational bodybuilders. Anabolic steroids act on androgen receptors and induce anabolic effects, both on the liver and reproductive system. Anabolic androgenic steroids have a prolonged mode of action and tend to increase anabolic effects while decreasing androgenic effects on muscle and tissues. Prolonged use of AAS puts the user at risk for health problems, some may be reversible while others are permanent.

Aim

The aim of this study is to investigate the effects of AAS and protein supplement abuse on liver function and male hormone levels among AAS consumers and protein supplement users compared to healthy individuals (controls).

Methods

A total of 43 volunteers were divided into three groups: 17 controls (group 1), 11 AAS users (group 2), and 15 protein supplement consumers (group 3). Serum sample was collected from the volunteers, centrifuged, aliquoted and stored at -35°C. Analysis was performed using AU5800 for the Liver function test. DXI 800 analyser was used to measure male hormone levels; testosterone, luteinising hormone (LH) and follicular stimulating hormone (FSH). Growth hormone (GH) was analysed using the same analyser. Data obtained was presented as mean ± standard error of the mean (S.E.M)

Results

Liver parameters for AAS users revealed significant increases in ALT, AST, and ALP enzymes ($P<0.05$, $P<0.05$, and $P<0.05$ respectively). Male hormones test showed significant increases in LH, FSH, GH and testosterone levels with $P<0.001$, $P<0.001$, $P<0.01$, and $P<0.01$ respectively when compared to groups 1. A similar observation was noticed for LH, FSH, GH and testosterone with $P<0.001$, $P<0.001$, $P<0.001$, and $P<0.001$ respectively when AAS levels were compared to group 3.

Conclusion

Anabolic androgenic steroids abuse has adverse and expected long-term effects on the liver, and the reproductive system. This could affect the general health of these substance abusers.

Keywords:

Anabolic androgenic steroids, Protein supplement, liver function,

gonadotropins hormone

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Effect of Anabolic–Androgenic Steroids and High Dietary Protein Supplements Among Body Builders on Kidney Function

Fatma Shara and Fatma Al Yatama

Medical Laboratory Sciences, Faculty of Allied Health Sciences, Kuwait University

Introduction:

Young males are expected to be attractive, successful, powerful, brave, and aggressive, and in order to demonstrate these physical attributes, they are sometimes encouraged to use anabolic steroids, growth hormones, and protein supplements to increase and accelerate muscle growth. **Aim**: To determine the effect of using Anabolic androgenic steroid, growth hormone abuse and high protein intake on renal function.

Materials & Methods:

Serum samples were collected from 46 subjects which are classified into 3 groups. 18 subjects who are protein-supplements consumers (group1), 12 subjects who self-administered AAS & GH (group 2), and 16 subjects, who consume neither protein nor administer AAS (control group/group 3).

Renal function test (RFT); urea, creatinine, uric acid as well as Na, K and Cl were analyzed using fully automated chemistry analyzer; Unicel DXI800 Synchron (Beckman Coulter). Hormones analysis were performed for Testosterone and GH using DXI800(Beckman Coulter).

Results:

Data obtained showed that RFT for high protein consumers had significant increase in urea, creatinine levels and decreased eGFR compared to control group with means values of   5.9±1.0 mmol/l (p<0.001), 92.3 ±13.9 µmol/l (p<0.010) & 101.8 ±3.7 (p<0.023) respectively. In addition, anabolic steroid users showed significant increase in urea and creatinine levels and decreased eGFR compared to control group with means value of 5.0±1.6mmol/l (p< 0.06) and 96.0 ±26.7µmol/l(p<0.09) respectively. Furthermore, statical analysis showed significant high levels of both testosterone and GH hormones   among AAS & GH users compared to control group and protein supplement users with mean values 25.6±0.1nmol/l(p<0.002)   and 56±2.4nmol/l(p<0.019) respectively.

Conclusion:

Recreational body builders who use AAS & high protein supplements expressed abnormal of kidney function. Thus, long term usage of these products may lead to chronic kidney disease and renal damage.

View

Poster

Effects of sunscreen products on acne vulgaris: a survey-based study

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INTRODUCTION
Acne vulgaris is a common skin disorder in which a certain phylotype of the skin commensal, *Cutibacterium acnes,* has been identified as a contributor. Although the importance of sunscreen application has long been emphasized, some individuals are yet reluctant towards the use of sunscreen. This could be due to the associated concept that sunscreen products may cause or aggravate acne lesions.

METHODS
A survey was conducted, which contained questions to help rule out other factors besides sunscreen products that are known to alter the skin microbiome. The survey was distributed to female participants of ages 18 to 35 (to limit gender and age variability) using a social media platform.

RESULTS
The survey received 101 responses out of which 85 (84.25%) participants use sunscreen. These are categorized as follows: 50 (49.5%) have acne, 23 (22.8%) do not have acne, and 12 (11.9%) no longer have acne. Of the 50 participants suffering from acne, the outcome indicated the absence of a statistical correlation (p-value >0.05) between the frequency of sunscreen use and acne severity. This result excludes the participants that suffer from medical conditions that could be causing their acne instead of the sunscreen in use.

CONCLUSION
The outcome of this study indicated the absence of a statistical correlation between the frequency of sunscreen use and acne severity. This result suggests that acne production due to sunscreen application could be a misconception. Yet, this hypothesis cannot be ruled out, and further investigation is required while taking into consideration the limitations that were encountered during this study.

KEYWORDS:
Acne, Sunscreen, *Cutibacterium acnes*

View

Poster

Effect of Cigarette Smoking on Liver Enzymes

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INTRODUCTION

Smoking is a major cause of morbidity and mortality worldwide. It can affect liver function through different mechanisms. The study aimed to investigate the effects of smoking on liver enzymes and some factors that could enhance these effects, such as BMI, number of smoked cigarettes\day, and the duration of smoking.

METHODS

The study was conducted among 200 participants, including 100 smokers and 100 healthy non-smokers as a control group. Data from both groups were collected by a questionnaire involving medical history, type of tobacco use, number of smoked cigarettes\day, duration of smoking, height and weight to calculate the BMI. Blood was collected from all participants and liver function tests including serum ALT, AST, ALP, and GGT were analyzed in the AU5800 analyzer. Statistical analyses were performed using IBM SPSS statistics 28 software.

RESULTS

The study showed a significant increase in all liver enzymes in smokers compared to the control group. The number of smoked cigarettes\day was significantly associated with elevated levels of all liver enzymes except ALP, while the effect of smoking duration was significantly associated with elevations in ALT, ALP, and GGT. Body mass index (BMI) was a confounding factor for AST and ALP, as they were affected when controlling for the BMI.

CONCLUSION

Cigarette smoking exerted a negative effect on the liver as the levels of liver enzymes were high. This effect depended on the smoking dose, duration of smoking, and BMI.

KEYWORDS:

Cigarette Smoking, ALT, AST, ALP, GGT, BMI.

View

Poster

Investigating the relationship between serum Cavin-1 and lipid profiles in individuals diagnosed with Type 2 diabetes mellitus

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INTRODUCTION

Diabetes mellitus is a chronic disorder that is characterized by elevated blood glucose levels (hyperglycemia) [1]. Diabetes is generally classified into mainly different categories based on the underlying cause of the consistent hyperglycemia: Type 1 diabetes mellitus (T1DM) and Type 2 diabetes mellitus (T2DM) [1]. Patient who suffer from T2DM are usually characterized by β-cells dysfunction, insulin resistance and increased body fat percentage. One of the major complications is cardiovascular disease. Cavin-1 is component of caveolae, which are small plasma membrane invaginations that are vastly abundant in adipocytes with metabolic roles in stimulated glucose and increased fatty acid uptake [2]. Cavin-1 dysregulation might contribute to the development of insulin resistance as well as diabetic complications.

METHODS

Left over serum samples were collected from a total of 36 participants (n=18 non-diabetic patients and n=18 T2DM patients). Cavin-1 was analyzed using Human cavin-1 (Polymerase I and transcript release factor) ELISA kit. Lipid profiles that were analyzed in this study included cholesterol, triglycerides, low density lipoproteins (LDL) and high density lipoproteins (HDL). Lipid profiles were analyzed using BECKMAN COULTER AU480 chemistry analyzer. Given that the data was normally distributed, non-parametric Pearsons test was used for correlation analysis. This study was approved by the HSC Ethics committee for student research at Kuwait university (FAHS project no. 27).

RESULTS

Diabetic patients had significantly lower concentrations of cavin-1 in comparison to non-diabetic/control patients. No correlation was found between cavin-1 and triglycerides. Weak negative correlation between cavin-1 and LDL and cholesterol levels in diabetic patients. Weak positive correlation between cavin-1 and HDL in diabetes.

CONCLUSION

Cavin-1 modulation may have a protective role against the development of cardiovascular as well as other complications in T2DM by means of promoting a protective lipid profile. However, owing to non-significant results and small number of subjects studied, we cannot draw a definite conclusion, and further mechanistic studies are warranted.

KEYWORDS:

T1DM, T2DM, and Cavin-1.

Investigating the relationship between serum EGF and glucose parameters in diabetes

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Background:

Epidermal growth factor (EGF) is a protein with pleiotropic biological functions in cell signaling, cellular proliferation, and differentiation. Previous studies have suggested a protective role for (EGF) in diabetes mellitus. In animal models of diabetes, EGF was shown to increase beta-cell mass and insulin secretion positively affecting glucose homeostasis. This study aimed to determine the levels of serum EGF in diabetics and non-diabetics and to correlate these levels with fasting plasma glucose (FPG).

Methods:

left-over serum samples from diabetics and non-diabetics were collected from primary health care clinics. EGF levels were analyzed in diabetic and non-diabetic serum samples by ELISA. The levels of EGF were then correlated with FPG levels using appropriate statistical tests.

Results:

EGF levels were significantly decreased in diabetic serum ($P<0.0001$) compared to the control group. Correlation analysis revealed that EGF in diabetic serum was negatively associated with FPG ($P<0.05$). This suggested that low levels of EGF might put diabetic patients at an increased risk of developing hyperglycemia and its associated complications.

Conclusion:

Our findings indicate that increased levels of EGF are associated with lower glucose levels in diabetic patients. A better understanding of the mechanisms by which EGF promotes low glucose levels and thus, good glycemic control may lead to novel therapies in diabetes**.**

Keywords:

Diabetes Mellitus, Epidermal Growth Factor, Fasting Plasma Glucose

View

Poster

Awareness of clinical Laboratory Personnel on Biosafety practices

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Background:

Awareness of biosafety in clinical laboratory practices is one of the most significant subjects that should be given more attention to ensure the monitoring of hazardous agents in the laboratory environment. Biosafety is a general term and is defined as the application of laboratory procedures and practices to specifically designed functions of laboratory facilities. Biosafety involves the implementation of appropriate health programs as well as the utilization of laboratory safety equipment when dealing with potentially infectious pathogens and other biological hazards.

Aim: This study was conducted to assess the awareness of the clinical laboratory personnel on biosafety practices.

Methods and materials: A questionnaire was distributed using e-mails and social media to laboratory workers and it included two main parts. The first part was about the demographics of the participants and the second part was about biosafety-related questions.

Results: 73 (73%) of participants wore their lab coats, gloves, and mask and 77(77%) disinfected their working area daily. An overall 96 (96%) of lab technicians used sharp containers for sharp objects. 86 (86%) of workers discarded used syringes directly into the sharp container. The majority of workers followed the instructions written in the SOP. 70 (70%) used disinfectants for rupture incidents and 93(93%) documented an incident report whenever an accident occurs. Safety equipments were available in most of the laboratories. Safety cabinets were used by most lab workers while dealing with infectious samples. 63 (63%) did not use their phones in the lab and 77(77%) do not take off their lab coat once they leave the lab. The results indicate that there is awareness among laboratory workers about safety practices followed in the laboratories.

View

Poster

Secondary Infections and Mortality rate among COVID-19 patients

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INTRODUCTION

The human coronavirus disease (COVID-19) was first reported in Wuhan, China. It was officially named severe acute respiratory, which is believed to be a spillover of an animal coronavirus and later adapted the ability of human-to-human transmission. The virus is highly contagious, rapidly spreads, and continuously evolves in the human population. Primary infection is the root cause of an individual's current health problem; a secondary infection is a complication of that root cause. The incidence of secondary pulmonary infections is not well described in hospitalized COVID-19 patients. Understanding the incidence of secondary pulmonary infections and the associated bacterial and fungal microorganisms identified can improve patient outcomes.

METHODS

In this retrospective cohort study, 236 patients from Brazil, India, and Iran were assessed and analyzed using the Pearson chi-square test on IBM SPSS.

RESULTS

158 patients from Brazil, 63 from India, and 15 from the Islamic Republic of Iran were also analyzed. Statistics showed that 64.4% (152) had bacterial infections with 12.3% (29) survival rate and 52.1% (123) mortality rate. The remaining 35.5% (84) applied for fungal infections with 10.2% (24) survival rate and 25.4% (60) death rate. From both infections, 22.5% (53) survived and 77.5% (183) were deceased.

CONCLUSION

A significant relationship between the mortality rate and the secondary bacterial and fungal infections has been shown. Early identification of the causative agent will prevent further pulmonary complications, septicemia, and death.

KEYWORDS

COVID-19, Secondary infections, Mortality

View

Poster

A correlational study between epidermal growth factor and lipid profiles in diabetic patients

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Background:
Diabetes is a category of metabolic illnesses identified by the presence of excessive blood sugar as a result of deficiency in insulin secretion and/or action abnormalities, or both. Epidermal growth factor (EGF) is a protein involved in many signaling pathways. Particularly in diabetes, EGF has shown a protective role, where one member of the EGF family, heparin-binding EGF was shown to promote anti-hyperlipidemic effects through lowering very low density lipoprotein (VLDL) levels in the blood. This demonstrates the effectiveness of epidermal growth factor in lipaemic control in diabetes.

Methods:
A total number of 40 serum samples were obtained from patients diagnosed with Type-2 diabetes. Levels of serum EGF were assayed using ELISA and correlation analyses were performed for EGF and lipid profile parameters including triglycerides (TG), cholesterol, low density lipoproteins (LDL) and high density lipoproteins (HDL).

Results:
Our data revealed that EGF is negatively correlated with TG ($r = -0.414$) and positively correlated with HDL ($r = 0.422$) and they are statistically significant. Furthermore, the result shows no correlation between EGF and LDL ($r < 0.1$) and a non-significant weak correlation with total cholesterol ($r = 0.107$).

Conclusion:
Our data suggest that reduced level of EGF may put diabetic patients at risk of dyslipidaemia and thus, the development of atherosclerosis. We conclude that EGF might be an anti-atherogenic protein in diabetes.

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Determination of D-Dimer levels in Deep Vein Thrombosis Patients in Kuwait

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Background:
Hemostasis is a physiological process that maintains fluid state of blood under normal condition and prevent excessive bleeding after vascular injury. This is achieved by the vascular endothelium, platelets, coagulation proteins and the fibrinolytic system. Venous thromboembolisms are blood clotting disorders that involve deep vein thrombosis and pulmonary embolism. In the laboratory, elevated levels of D-Dimer are indicative of the presence of a blood clot. D-dimer, which is a small protein found in blood, can be used as a biomarker for fibrinolysis and the presence of VTE.

Aim:
The aim of this study is to determine the levels of D-Dimer in DVT patients in Kuwait, who have been free of the clot for at least 3 months.

Method:
One citrated blood sample was collected from 19 DVT patient after at least three months of a thrombotic episode and 16 healthy subjects. D-Dimer analysis was done using a latex enhanced turbidometric assay kit. Serial dilutions of five standards were prepared spanning D- Dimer concentration from 3000 ng/ml to 187 ng/ml. Absorbance at 546-800 nm was determined on Clariostar microplate reader. Readings were used to construct a standard curve from which the result of unknown patient sample were extrapolated.

Results:
DVT patients had significantly higher levels of D-Dimer 2816.26 ng/ml (182.68- 6023.35) compared to normal controls 1009.74 ng/ml (65.25-5367.59) ($p=0.039$).

Conclusion:
Elevated levels of D-Dimer were found in DVT patient even after undergoing treatment and recovery from it. This may be suggestive of an ongoing risk of recurrence and possible presence of post thrombotic syndrome. Future work will focus on including greater number of subjects and testing for other marker of thrombosis in DVT patients in our region.

The effect of C reactive protein count on Covid-19 disease prognosis

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While certain macromolecules have been investigated as potential biomarkers for COVID-19 patients' prognosis, no clear signal of illness progression or severity exists. We wanted to explore if C-reactive protein (CRP) could be used to predict how COVID-19 infection would progress. CRP is created in the liver and its level is determined through blood tests. CRP is an acute phase reactant, which indicates that it rises in reaction to inflammation. CRP levels have been linked to severe pneumonia in some studies, and higher CRP levels have been linked to early detection of pneumonia.

Symptomatic, asymptomatic, ICU survivor, and ICU dead patients' clinical and laboratory information on admission, COVID-19 patients at Kuwait's Jaber Al-Ahmad Hospital were collected and analyzed. At the time of admission, data on demographic variables, clinical aspects, and laboratory findings were obtained. The T-test was employed to see if there was a significant difference between the means of groups that were perhaps related in some way.

417 patients diagnosed with COVID-19 were evaluated retrospectively between February and May 2020. Asymptomatic cases (n = 164), symptomatic cases (n = 171), ICU survivors (n = 22), and ICU fatalities (n = 60) were divided into four groups. The P-value for comparing symptomatic with asymptomatic COVID-19 patients and ICU fatalities with ICU survivors is 0.0001, which is statistically significant. The P-value was not significant when the survivors were compared (P = 0.7932).

CRP levels in the blood can be used to measure disease severity and predict outcome in COVID-19 patients.

View

Poster

The Knowledge and Experience of MOH Primary Health Care Physicians Regarding Intestinal Parasitic Infections in Kuwait

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INTRODUCTION: Intestinal parasitic infections caused by either helminths or protozoa are spread globally, with different prevalence rates. Clinical manifestations can range from mild to severe complications. The demographic status of Kuwait with expatriates being triple the number of nationals, and most expats coming from endemic countries, makes the country exposed to many parasitic diseases and increases the responsibility of the Ministry of Health (MOH) to detect and treat them, and in some cases reduce or prevent the transmission in the community. Hence, we aim to assess the knowledge and experience regarding intestinal parasitic diseases in primary health care doctors (PHC) working in the MoH in Kuwait, as they are the point of entry to the health care system.

METHODS: A cross-sectional study was carried out between 24 April to 12 May 2022. 100 PHC doctors were randomly selected from different governorates. Most responses were gathered using a questionnaire from doctors while visiting MOH primary care clinics.

RESULTS: Our findings have shown that more than half of the sampled PHC doctors perceived their knowledge as inadequate in parasitology (more likely female doctors and junior doctors). With regards to knowledge in modes of transmission of intestinal parasites, only 15% of respondents provided all correct answers. Discrepancies in answers were statistically associated with the sex and years of experience. The majority of sampled doctors (66%) were not aware of the process required by the MoH for travellers in Kuwait and 58% did not report intestinal parasitic infections to the Preventive Medicine Department.

CONCLUSION: The findings of this study should be taken into consideration in future evaluations of the teaching curriculum and professional training for PHC doctors. The significant differences between sex (and other parameters) in terms of the knowledge, confidence in diagnosing, treating, as well as reporting intestinal parasites are findings that require further studies to understand these observations.

KEYWORDS: Parasites, Intestinal parasites, Kuwait, Primary health care.

View

Poster

Are The Reusable Razors at Male Salons Safe?

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INTRODUCTION

Some types of bacteria can survive in disinfectants and live on fomites such as stainless steel. This study was conducted to check whether using disinfectant glasses in Kuwaiti salons to clean reusable razors is safe and free of pathogens or not. These pathogens can cause serious human infections in various systems if they found a route to the body.

METHODS

Thirty samples were collected from salons that are using reusable razors to check for bacterial growth. Each ten samples from three governorates of Kuwait: Farwaniya, Hawalli, and Kuwait City. All samples were collected at night and cultured the next morning on Blood agar and MacConkey agar and incubated at 37oC for three days at Al-Amiri Hospital under sterile conditions. To additionally support this study, the employees at these salons were asked various questions so that the situation at these salons would be understood further.

RESULTS

The agars were examined once a day during the incubation period and there was no bacterial growth during that period.

CONCLUSION

Using disinfectants as a cleaning method for salon equipment can be effective, and it is safe to use reusable razors in case you are using the right disinfectants.

KEYWORDS:
Infection, Disinfectant, Bacteria

View

Poster

COVID-19: a retrospective study and the relationship between myeloid cells and the disease severity

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INTRODUCTION

Currently, the world is facing a disease outbreak caused by a new strain of coronaviruses called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the disease it causes had been officially named coronavirus disease 2019 (COVID-19). The infection by SARS-CoV-2 can alter the absolute numbers and ratios of the lung microenvironment cells that act as a frontline barrier against particulates and pathogens. The main purpose of this report was to investigate whether the concentrations of myeloid cells in the blood of a group of COVID-19 positive patients who were admitted to the primary hospital caring for COVID-19 patients in Kuwait are related to the variability of the disease severity and mortality.

METHODS

A total of 417 patients with confirmed COVID-19 who were admitted to Jaber Al-Ahmad Hospital in Kuwait between 24 February 2020 and 24 May 2020 were included in this retrospective study. The demographics and clinical data were collected and compared between asymptomatic, symptomatic with mild/moderate symptoms, ICU survivors, and ICU death groups. Unpaired t-test analysis was used to calculate the p-values to assess the significant differences (when $p < 0.05$) between the mean of each myeloid cell blood level of the asymptomatic and symptomatic patients and the means of these cells of ICU groups.

RESULTS

Of the 417 patients with COVID-19, 82 were diagnosed as severe cases. Around 63% of the patients were men and the average hospital admission duration of all patients was 19.40 ± 9.109 days. In this cohort, the number of asymptomatic patients was 164 (39.3%), 171 (41%) patients were symptomatic, and 82 cases were admitted to the ICU with a total mortality rate of 14.4%. The mean neutrophil count of the ICU death group was significantly higher than that of the ICU survivor group (11.7 vs. 5.35, $P < 0.001$).

CONCLUSION

Among the myeloid cell population, only neutrophil counts showed significant differences between the COVID-19 patient groups with different severity. However, a dynamic change of neutrophils and the analysis of the neutrophil-to-lymphocyte ratio (NLR) can give a better insight into the disease severity.

KEYWORDS

COVID-19, SARS-CoV-2, myeloid cells, Kuwait.

View

Poster

Superoxide dismutase-1 single nucleotide polymorphism in diabetic nephropathy

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Introduction: One of the most prevalent metabolic disorders known to humanity is Type 2 Diabetes (T2D). The insufficient production of insulin and poor glycemic control is a main factor in developing or in the advancement of Diabetic nephropathy (DN). DN also known as kidney disease, is the degeneration or failure of the kidney function that is usually seen with patients of both type 1 and type 2 diabetes. Allelic variations in the SOD-1 gene have been associated with DN as well as cardiovascular complications in patients with T2D. In this study, we are looking at the prevalence of SOD-1 gene in diabetic nephropathy patients compared with patients with type 2 diabetes without nephropathy.

Materials and methods: Single Nucleotide Polymorphism (SNP) technique was used to genotype the SOD1;SFRS15 gene in 38 patients with diabetic nephropathy undergoing dialysis and compared to a group of 64 patients with diabetes but without nephropathy detected. To genotype the SNPs, extracted DNA was used from the two groups and TaqMan® GTXpressTM Master Mix protocol was applied for allelic discrimination. For statistical analysis, the Vassar online calculator was used to apply the chi-squared test calculated at 2x2 contingency tables.

Results: The risk allele A has a frequency greater than the non risk allele C frequency of the SOD1;SFRS15 gene in both of the groups. However, in the SOD1;SFRS15 gene SNPs, the lowest probability value (P= 0.05) was observed. We noticed that the risk allele A of the SOD1;SFRS15 gene (rs17880135) showed more frequent presence in individuals with diabetic nephropathy.

Conclusion: The diabetic nephropathy group (frequency of risk allele = 0.75) showed more association to the SOD1;SFRS15 gene than the diabetic without nephropathy group (frequency = 0.62). Furthermore, genetic studies should be expanded to investigate other genes and find associations that would help in the prognosis and prevention from the development of the disease.

KEYWORDS:
Diabetic nephropathy , SOD1 gene, Single Nucleotide Polymorphisms

View

Poster

Impact of High D-Glucose on Breast Cancer Cell Growth and Metastasis

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Background: Diabetes mellitus is on the rise globally, and associated diseases such as cancers have also increased. Recent studies have shown hyperglycaemia as a risk factor for cancer development in patients with diabetes. Hyperglycaemia increase the prevalence and mortality of many cancers including breast cancer. Also, it has been suggested that hyperglycaemia increases cancer cells resistance chemotherapy.

Aim: To explore the effect of hyperglycemia on breast cancer cell line growth and metastatic ability.

Methodology: Invasive MDA-MB-231 cell line was used in the current study. Cell viability assay used to detect the effect of D-glucose on cell growth. Scratch assay was implicated to measure the migration ability of cells. Western blot was performed to assess the protein expression of invasion markers.

Results: D-glucose enhances MDA-MB-231 cell viability in a concentration and time dependent manner. The migration ability of cells was augmented by introducing D-glucose in a concertation and time dependent manner. This resulted in enhancement of cells invading ability as presented by the increase in MMP2 protein expression.

Conclusion: the current study suggested that high glucose may contribute to the growth and metastasis of BC cell line.

Keywords; Breast cancer, Hyperglycemia, Invasion, Viability.

The antibacterial efficacy of liquid hand sanitizer and liquid soap

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There are at least 10,000 organisms per cm2 of normal skin flora and the hands are one of the primary places for spreading illnesses Soaps and sanitizers are used to maintain skin hygiene since they help to prevent pathogen outbreaks and food contamination. Although hand washing is one of the most effective tactics for avoiding infectious agents, it is uncertain whether this method is more effective in preventing the spread of pathogenic bacteria. The effectiveness of various hand washing processes on the bacteria ecology of human hands indicated the effects of bacterial transmission.

The project aims to test the antibacterial efficacy of liquid hand sanitizer and liquid soap. The study's design was to determine which concentrations of liquid hand sanitizer and liquid soap inhibited bacteria. which undergoes two techniques: Methods of Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC).

The results revealed growth in all of the soap samples, but suppressed growth in all of the alcohol-based hand sanitizer plates, with the exception of the 5% concentration in the *Pseudomonas aeruginosa.* There was some growth in the 10% *Escherichia coli* and 10% *Pseudomonas aeruginosa* plates, but it appears to be contamination.

In conclusion, we may deduce that alcohol-based hand sanitizers are efficient against a variety of germs, including *Escherichia coli, Staphylococcus aureus, and Pseudomonas aeruginosa*. It's possible that the reduced efficiency of soap is due to the mechanical procedure necessary to eliminate surface germs.

View

Poster

Detection of food borne pathogenic microorganisms in household refrigerators

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Introduction: The food-borne illness usually increases with poor hygiene in household refrigerators, where many bacteria can grow and colonize due to their survival characteristics. Bacteria can contaminate stored food in home refrigerators in case of poor refrigerators and kitchen hygiene, which increases the potential of food-borne illness. The aim is to detect the pathogenic bacterial growth in household refrigerators. Also, to increase the knowledge about the food-borne illness risk factors and the importance of regular cleaning of the household refrigerators.

Method: Samples were taken from the inner surface of three different refrigerators. All organisms growing on a culture medium were isolated until pure growth was obtained. Identification methods were performed included colony counting, growth on culture media, gram stain, catalase test, API 50 CH, VITEK, and E test.

Results: The results showed the presence of *Bacillus cereus* and *Bacillus subtilis* on the inner surfaces of different household refrigerators. *Bacillus cereus* showed resistance to penicillin, while *Bacillus subtilis* showed sensitivity to all the tested antibiotics.

Conclusion: *Bacillus cereus* and *Bacillus subtilis* are good survivors under home refrigerator conditions as confirmed by the results of this research. These results confirmed the importance of periodic cleaning of refrigerators and the high importance of knowledge of good hygienic practices to prevent these bacteria from contaminating household refrigerators to maintain consumers' health and reduce the risk of food borne illnesses.

Key words: Food borne illnesses, *Bacillus cereus, Bacillus subtilis*

View

Poster

Human platelet Antigen

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INTRODUCTION

Platelets are fundamental in controlling bleeding and in promoting inflammation, wound healing, immune responses, and vascular integrity. Platelet specific antigens are present on surface membrane glycoprotein, which consist of amino acid sequence that is known as Human Platelet Antigen (HPA). Platelet specific antibodies against HPA might be involved in alloimmune disorders such as fetal and neonatal alloimmune thrombocytopenia (FNAIT), post transfusion purpura (PTP) and platelet transfusion refractoriness (PTR). Several populations identified HPA genotypes around the world and in the Arabian countries, however, data in Kuwait are not available.

The aim of this retrospective study is to analyse different HPA genotypes and to identify the most common ones in Kuwait.

METHODS

Data collection of 108 samples were analysed. Data included genotypes of HPA-1, -2, -3, -4, -5 and -15 which were determined by flow cytometry technique. The gathered data also included gender and nationality.

RESULTS

The sample (n= 108) included 51% females and 49% males. The nationality was Kuwaiti (65%) and non-Kuwaiti (35%). The most common genotype in Kuwait was aa: (a+, b-) in HPA-1, HPA-2, HPA-3, HPA-4, HPA-5, with percentages of 71%, 83%, 52%, 100%, and 74% respectively. Whereas for HPA-15, the most common genotype (48%) was ab: (a+, b+).

CONCLUSION

Similar to regional data about the HPA genotype, this project reported that the most common HPA genotype was aa for HPA-1, HPA-2, HPA-3, HPA-4, HPA-5. While for HPA-15, ab was more common. This analysis of HPA-1 to HPA-5 in Kuwait and, can serve as the background to diagnose the causes of FNAIT, PTP, and PTR and to provide HPA-matched platelet for patients with HPA alloimmune disorders.

KEYWORDS:

HPA, platelets, genotype

View

Poster

Prevalence of *Candida auris* in ICU patients during the COVID-19 pandemic in Kuwait

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Introduction: *Candida auris* is a novel fungal pathogen that can cause outbreaks in healthcare facilities due to its multi-drug resistance, biofilm formation and misidentification with other species. Since the COVID-19 pandemic started in Kuwait, many patients were admitted to intensive care units (ICUs) to treat this viral infection with the aid of immunosuppressive drugs, broad-spectrum antibiotics and mechanical ventilation, which have contributed to clinical co-infection with *C. auris*. Therefore, this study aims to evaluate the prevalence of *C. auris* infections and their antifungal resistance profiles during the COVID-19 pandemic over the three-year period (2019-2021).

Methods: The data was obtained from the Reference Mycology Laboratory, which is located in Mubarak Al-Abdullah Al-Jaber Al-Sabah Centre for Kidney Dialysis. All data was coded and analyzed using Microsoft Excel (Version 16.27). Statistical analyses were performed to prove the relationship between the increase in *C. auris* and COVID-19 patients using SAS 9.4. P-value < 0.05 was considered statistically significant.

Results: A total of 194, 282 and 405 samples from different clinical specimens were reported with *C. auris* in 2019, 2020 and 2021, respectively. The statistical analysis showed that there was a significant increase in the number of *C. auris* cases over the three-year period (P-value <0.001). In addition, the correlation coefficient (Rho: 0.47) showed a statistically significant positive correlation between the number of *C. auris* and COVID-19 patients, with P-value = 0.025. Resistance in the tested *C. auris* isolates to fluconazole, amphotericin B, caspofungin, anidulafungin and micafungin was detected in 795/804 (99%), 120/880 (14%), 9/552 (2%), 2/3 (67%) and 1/11 (9%) isolates, respectively.

Conclusion: This study clarified the *C. auris* super ability to spread in healthcare units and has shown that it increased with the waves of COVID-19 pandemic in Kuwait hospitals. A greater understanding of its epidemiology and awareness among healthcare staff and infection control measures are essential to prevent further hospital transmission.

Keywords: *Candida auris*, co-infection, COVID-19

View

Poster

Concordance rate between SARS-CoV-2 PCR and rapid antigen tests (RATs)

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INTRODUCTION

Rapid antigen tests (RATs) for SARS-CoV-2 do not require specialized operators or expensive machinery like PCR testing. The aim of this study was to evaluate the role that RATs play as a tool to fight the spread of SARS-CoV-2 in Kuwait; and to assess the concordance of PCR and rapid antigen test results.

METHODS

Anonymous recruitment of individuals n=232 through an online survey between April and May 2022. Questions were categorised into sections: demographic data, blood group, how individuals tested their suspected infection, symptoms experienced, test results , vaccine status, and finally whether they were previously infected with SARS- CoV-2. The concordance of results of both PCR and rapid antigen tests was assessed.

RESULTS

n = 166 individuals conducted testing for SARS-CoV-2 infection. PCR alone was the main form of testing in study participants (74.1%), RATs only accounted for 7.2% and finally 18.7% of survey participants tested using both PCR and RAT. Dissection of both concordant and disconcordant results revealed that 55% of PCR and RATs were in agreement , while those that were disconcordant (45%) were due to the lower sensitivity of RATs was seen in our data cohort compared to PCR.

CONCLUSION

The use of rapid tests in Kuwait to fight the spread of SARS-CoV-2 was much lower than anticipated. PCR still remains the gold standard and is the only officially approved testing modality by the Ministry of Health.

KEYWORDS:
RATs, SARS-CoV-2, PCR.

View
Poster

Occupational Therapy (OT)

Awarded Posters OT

No.	Student Name	Title
OT-9	Ayat Karam Aishah Al-Hammadi	Post COVID-19 Infections and Related Health Conditions of the General Population in the State of Kuwait
OT-6	Shorouq Aldhafiri Dana Alaqas	The impact of Post-COVID-19 on the mental health, functional performance, and wellbeing of hospitalized older adult

The Effect of Delayed Referral on Hand Function and its association with Psychosocial Health.

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INTRODUCTION: Hand injuries can disrupt daily life functions, and may be associated with serious psychological dysfunction. This in turn, may result in withdrawal from social life.

Delayed referrals and initiation of hand therapy may lead to higher complication rates, which may further contribute to the person's ability to participate in daily activities.

METHODS: In this cross-sectional study, we targeted individuals with hand injuries, who were referred to the Hand Therapy Units in the PM& R and Al-Razi Hospitals.

Two standardized outcome measures and a self-developed questionnaire were used to collect data. 1) Quick- DASH: An 11-items measure of upper limb function. 2) DASS-21: A 21-item measure of negative emotional levels of depression, anxiety and stress. 3) Demographics data we collected, in addition to, appearance of the wound, withdrawal from social life and privacy in the clinic.

We used SPSS (v.25) to analyze the data by utilizing descriptive and correlational statistical analysis.

RESULTS: A total of 22 individuals participated in the study. The mean age was 31.23. The average time from the injury to the referral was 43.6 days, and the time between receiving the referral to first hand therapy session was 12.8 days.

With regard to the injury, 40.9 % of the participants were dissatisfied with the appearance of the wound, and 13.6 % were mostly to completely withdrawn from social life and events due to their injury.

The DASH level of function indicating moderate level of functional limitation. The psychological function, revealed severe levels of stress and anxiety levels, and a moderate level of depression.

A negative correlation was found between pain and sleep quality ($p < .001$). Sleep quality was also moderately correlated with anxiety ($p = .006$) and mildly correlated with stress ($p = .05$). Depression was positively correlated with anxiety ($p = .007$) and stress ($p < .001$)

CONCLUSION: The main findings of the study revealed a long delay time from the time of injury until the hand therapy. The appearance of the wound was associated with withdrawal from social activity. Disturbance in sleep leads to increase in pain level.

KEYWORDS: DASH, DASS21, Hand injuries, treatment delay.

View

Poster

Perspectives of paediatrics occupational therapists working in Kuwait about the challenges and facilitators in utilizing evidence-based practice: a qualitative study

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BACKGROUND: Evidence based practice (EBP), which is the combination of the research evidence, clinical expertise, and patients' values, supports occupational therapists to use the most effective interventions. Multiple studies have shown that occupational therapists are facing many barriers in using EBP. In Kuwait, no studies were found addressing these barriers specifically in paediatrics area. The purpose of this study was to explore the perspective of paediatrics occupational therapists about barriers and facilitators in implementing EBP in their services and strategies to overcome these barriers.

METHODS: A phenomenological qualitative design was used. Data were collected using semi-structured interviews with 10 occupational therapist working in paediatrics area in Kuwait. The participants were selected using purposive sampling. Data were analysed using thematic analysis. The ethical approval number is 757.

RESULTS: Four themes emerged: 1) organizational support, 2) source of motivation, 3) circumstances with EBP, and 4) strategies to overcome the barriers. Paediatrics occupational therapists were found in lack to equipment and spaces required for implementing EPB which the organization does not support. They do not get support in terms of costs and workshops to update their knowledge. However, colleagues used to have a powerful impact on the therapists' motivation to implement EBP. Parents satisfaction and high level of confidence are having a crucial role to help occupational therapists keep searching for evidence. Despite that, available research usually lacks to techniques that could be used by occupational therapists, and the therapists themselves have limited skills that help them to implement the EBP. Strategies were found to overcome these barriers which include establishing a library, providing a remotable access, and encouraging the discussions between the team members.

CONCLUSION: The results of this study showed that there are hinders and motivators for using EBP based from the occupational therapists' perspectives. Despite all of these barriers, they still have the inner motivation to overcome the limitations and come up with possible solutions. Investigating their perspectives assisted in exploring the leading causes to these barriers and suggesting possible strategies to overcome them.

KEYWORDS:

Evidence-based interventions, children, research utilization

View

Poster

The level of burden of life, depression, anxiety, and well-being among caregivers of elderly with and without dementia in Kuwait

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Introduction: Previous studies determined the level of burden of life, depression, anxiety, and well-being among caregivers of elderly with dementia in comparison to caregivers of elderly without dementia in the world. We recruited dementia and non-dementia caregivers and compared their burden of life, depression, anxiety, and well-being. The purpose of the study is to compare the level of burden of life, depression, anxiety, and well-being among caregivers of elderly with and without dementia in Kuwait.

Methods: Cross-section study was conducted. Demographic data and the self-administered questionnaires: Zarit Burden Interview, Hospital Anxiety and Depression Scale, and Well-Being Index were collected from caregivers of elderly with and without dementia. Independent t-test was used to determine the differences between the level of burden, depression, anxiety, and well-being, between the caregivers of elderly with and without dementia. All participants were informed of the purpose of the study, and their privacy was protected. The ethical approval number is 893.

Results: The study included 260 participants, 162 caregivers of elderly with dementia; 98 caregivers of elderly without dementia. The independent t-test showed significant differences between the level of burden between the caregivers of elderly people with and without dementia ($p<.05$). The caregivers of elderly people with dementia have a greater burden (mean = 18.27) than caregivers of elderly people without dementia (mean= 14.44). The independent t-test showed significant differences between the level of anxiety between the caregivers of elderly people with and without dementia ($p=.002$). The caregivers of elderly people with dementia have a greater anxiety (mean= 10.49) than caregivers of elderly people without dementia (mean= 8.61). The independent t-test showed significant differences between the level of well-being between the caregivers of elderly people with and without dementia ($p=.013$). The caregivers of elderly people with dementia have a lower quality of life (mean = 51.28) than caregivers of elderly people without dementia (mean= 58.90)

Conclusion: Most caregivers of the elderly with dementia were anxious, experienced a mild burden, low quality of life, and had borderline depression. Health care professionals should consider these issues facing caregivers when providing services for their elder people with dementia.

Keywords: caregiving, quality of life, older adults.

View

Poster

The Effect of Traumatic Experiences and Depression on Occupational Performance and Quality of Life on Health Science Center Students

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INTRODUCTION
Trauma experienced by students in the medical field consider tending to others as a form of therapy. Therefore, the lack of research on the effects of traumatic experiences (TE) and depression on occupational performance at university level led to the development and focus of the research topic.

Objective
The purpose of this study is to identify the correlation between the effect of traumatic experiences (i.e., PTSD and complex PTSD) and depression among students' occupational performance (OP), and quality of life (QOL).

Method
Study design was descriptive and cross-sectional. 47 participants participated in an online survey. The Questionnaires administered included Self Satisfaction of Daily Occupation (SDO), International Trauma Questionnaire (ITQ), Beck's Depression Inventory (BDI) and World Health Organization Quality of Life Brief (WHOQoLBrief).
Spearman correlation was used to identify the relationship between BDI and WHOQoLBrief. Ethical approval number: 752

Result
Most of the study participants were female (n=45, 95.7%), there was a negative relationship between activity level satisfaction with performance. There was a significant negative correlation between BDI and quality of life social domain and quality of life environment domain (P=0.001).

Conclusion
Research is needed in order to identify the causes of depression and traumatic experiences among students. Free counselling services to students in AHS, Medicine, Pharmacy, Dentistry as well as the provision of mental health care consisting (on and off campus) are recommended.

KEYWORDS:
Medical Students, Mental health, Stress, counselling services

View Poster

OT-05

Level of stress among allied health students and utilised type of coping strategies

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INTRODUCTION

University is a significant, demanding and time-consuming experience. Adjusting to a new environment (i.e. socially physically and academically) can create stress, affecting their physical and mental wellbeing, academic expectations and quality of life. Stress is a state of mental or emotional strain causing tension. It is caused by a triggering experience combined with a lack of ability to cope.Whereas, coping is described as the use of cognitive and behavioural strategies in response to various levels of pressures.

The purpose of the study was to assess perceived stress & coping strategies among allied health students.

METHODS

Cross sectional, descriptive design was used for this study. Written ethical approval (no.977) was obtained from IRB, Then two combined questionnaires were developed on Microsoft form ,and were sent online to participants . They filled out demographics information and answered 10 items of Perceived stress scale and 28 items of Brief cope inventory.

RESULTS

A total of 201 participants were eligible for analysis. Descriptive statistics were analyzed into mean , standard deviation and percentage .Spearman correlation was used to identify the relationship between stress levels and choice of coping strategy types. The majority of students (38%) reported having moderate levels of stress (n=112). The mean (+/- SD) of the major types of coping were emotion focused 31.6 (+/- 5.7), problem focused 20.9 (+/-4.3) , and avoidant 14.8 (+/-3.6). Stress and avoidant coping strategies were found to be negatively correlated , r(199) = -0.218. Emotion and problem focused coping strategies were found to be positively correlated , r(199)= 0.554.

CONCLUSION

The study conducted found an association between stress levels (SL) and coping strategies (CS). Furthermore, the majority of AHS students showed signs of moderate stress. It was also discovered that as stress levels increased, students chose emotion-focused strategies (i.e., Positive reframing, emotional support, etc.) and problem-focused strategies (i.e., planning, active coping, etc.). While overall, students didn't utilise avoidant coping methods as a strategy.

KEYWORDS:

Stress, coping strategies, students

View

Poster

The impact of Post-COVID-19 on the mental health, functional performance, and wellbeing of hospitalized older adults.

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Introduction:

Coronavirus disease 2019 (COVID-19) is a novel communicable disease produced by new strains of the coronavirus that causes a severe acute respiratory syndrome, SARS-CoV-2. Older adults are at a larger risk of bad outcomes. During hospitalization patients experienced several psychological problems. Hospitalization can result in long-term functional impairment in certain older adults. Moreover, well-being is required for society to function properly.

Method:

The survey was sent to the participants, which is a self-administered questionnaire. The survey contained the demographic data and three instruments, including Depression, anxiety and stress scale (DASS21), satisfaction of daily occupation (SDO) and World health organization-5 well-being index (WHO-5 well-being). The survey was collected from 101 Older adults aged 60 and above who had contracted COVID-19 infection and recovered. The Chi square tests were performed to determine the differences between hospitalized and non-hospitalized on the three levels of depression, anxiety and stress. Independent t-test was performed to determine the significant differences of the means of the hospitalized and non-hospitalized patients. A spearman's was also performed to measure the correlation between the three assessments. The ethical approval num. (943).

Results:

The study included 101 participants (50 hospitalized and 51 non- hospitalized). The ages mean 66.09 ± 6.716 years. The results showed that significant differences between hospitalized and non-hospitalized patients for DASS21 scores $[t(99) = -3.842, p = .000]$ with hospitalized patients having a greater stress mean (μ = 21.24 ± 9.38) and had a greater anxiety mean (μ = 20.12 ± 10.23) than non-hospitalized (μ =12.51 ± 10.07).). Stress scores in DASS21 were moderately negatively correlated with WHO-5 overall scores and SDO satisfaction scores.

Discussion & conclusion:

This study showed that the majority of hospitalized patients experienced moderate to severe depression and stress, and the anxiety level were extremely severe. Increasing public awareness of depression, anxiety, and stress and its impact on the well-being are very essential to promote mental health.

Key words: hospitalized, covied-19, older adult.

View

Poster

OT-07

The Perspectives of Health Care Professionals Regarding Treatment Strategies used with Addicts: Implications for Education and Practice

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Introduction

Addiction is a serious health related problem that affects a lot of people worldwide. It is responsible for millions of deaths per year around the world. Addiction seems to be an important public concern. However, knowledge about the types of treatment strategies used by health care professionals towards addicts is limited in the Middle East.

Objective

This study aimed to explore the prospective of health care professionals regarding treatment strategies used with addicts in the Middle East.

Methods

This study design is a cross-sectional and descriptive. A convenience sampling of health care professionals, with a minimum of 1 year working experience, participated in the study. Standardized questionnaires (Drug Abuse Screening Test and Substance Abuse Assessment) were adapted and used. Online questionnaires were sent to the study participants through social media platforms. Descriptive statistics were utilized and association between the study variables were conducted using chi square analysis. The ethical approval is 721.

Results

The final sample included 60 participants from various health care disciplines within different Middle Eastern countries. Engagement in various daily activities was affected. The most common treatment strategies used with addicts were individualized therapy, behavioral therapy, group therapy and cognitive behavioral therapy. The study findings indicated that there is a high number of addicts (n= 35, 58.3%) among adolescents aged 12-21 years. The use of cognitive behavioral therapy, as a treatment strategy used in practice, was significantly associated with addicts presented with mental illnesses including Anxiety Disorder (P=0.001) and Schizophrenia (P=0.013).

Conclusion

Since there is a large percentage of adolescents engaged in addiction, wellness and prevention programs should be provided to high school students. Doing so assists in increasing level of awareness among students and decrease the risk of the possibility of their future engagement in addiction. The provision of treatment strategies toward addicts should be culturally relevant and scientifically driven. This study contributes to the academic and research work in the important area of addiction as a major public concern. Collaborative work between educational institutions and health care facilities is of a priority leading to optimal therapeutic outcomes for addicts particularly in Kuwait.

Keywords:

Addiction, substance use, treatment strategies, health care professionals,

Kuwait

View

Poster

Effect of Physical Activity on Level of COVID-19 Antibodies and Lifestyle Related Factors Among Vaccinated Health Science Center (HSC) Students: A Randomized Control Trial

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[2] MSc. in Anatomy & Neuroscience, Faculty of Medicine, Kuwait University

Introduction: A vaccine is a type of medicine that increases immunity and the number of antibodies (IgM and IgG) when injected in the body and prepares it in case of an actual viral infection. It was shown in several studies that there is a significant relationship between physical activity and vaccination. As well as there is a relationship between physical activity in reducing stress. An evidence showed that there is a relationship between immunity, vaccine response, and sleep duration.

Objective: To investigate the effect of physical activity on the level of COVID-19 antibodies and lifestyle related factors among HSC students who had taken the 3rd dose of the vaccine and had no prior infection of COVID-19 virus.

Methods and Materials: To serve the purpose of the study, anti-SARS-CoV2-test was applied by taking a blood sample from students. Perceived stress scale (PSS) and Pittsburgh Sleep Quality Index (PSQI) questionnaires were given to the participants to fill out. Pinch test was done by using Pinch Dynamometer. All tests and assessments were performed before and after intervention for both groups. The study utilized a two-arm randomized control research design in which twenty-six participants were randomly assigned into one of two groups, (1) control group (n=13), (2) Treatment group (n=13). The control group walked less than 5k steps every day for one month. Whilst the treatment group walked more than 12k steps daily for the same amount of time. Students' steps were monitored using the apple watch. Ethical approval number: 712

Results: There was a significant decrease in IgG antibodies level in the treatment group compared to the control group ($p < 0.001$). Moreover, there was a significant increase in strength of the left hand of the treatment group after intervention (P value < 0.021). Also, there was a significant decrease in the treatment group's stress level and sleep disruption, indicating better sleep quality, compared to the control group (P-value < 0.036).

Conclusion

The level of IgG and IgM has not improved for the treatment group. Therefore, further rigorous research is needed to investigate the efficacy of vaccine among more physically active people.

View

Poster

Keywords

Vaccine, Physical activity, Antibodies, lifestyle.

Post COVID-19 Infections and Related Health Conditions of the General Population in the State of Kuwait

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INTRODUCTION

Early studies indicated that there were post COVID-19 health issues that persisted after recovery. The purpose of this study was to examine post covid- heath conditions that developed after being infected with COVID-19 or health conditions status after being infected of the population in Kuwait.

METHODS

A descriptive cross-sectional design was used in this study. A self-reported questionnaire with closed-ended questions was used to determine heath conditions that were developed after being infected with COVID-19 or heath conditions status after being infected. The questionnaire included sections of health conditions such as chronic, physical, cognitive, and psychological. Participant would indicate if the health condition was pre-existed or developed after being infected with COVID-19.

RESULTS

The total participants are 579. The ages ranged from 18 to 95 years old with a mean of 34.76 ± 12.786 years. 93% of the participants reported at least 5 post COVID-19 symptoms. The most category developed post COVID-19 health condition and pre-existed health were deteriorated was the physical symptoms. The most common health conditions that were developed post COVID-19 infection (22.5%) anosmia, (26.3%) fatigue, (22.8%) poor concentration, and (19%) anxiety. The most common pre-existed heath conditions that were detoriaroted post COVID-19 infection (9.8%) respiratory diseases, (26.1%) frequent hair loss, (17.4%) poor concentration, and (20.6%) trouble sleeping.

CONCLUSION

The results of this study showed an increase in the post COVID-19 health conditions, and pre-existed health conditions that were deteriorated post COVID-19 infection, which affect the general health of the population in Kuwait. Our findings aid in making judgments about service design and priorities patients' treatment.

KEYWORDS:

Post COVID-19, General Health, SARS-CoV2, Long COVID-19

View

Poster

Physical Therapy (PT)

Awarded Posters PT

No.	Student Name	Title
PT-4	Mariam Almutairi Areeb Alduwailah Fatemah Arrfaj Fatemah Ali Lamia Alenezi	The effect of muscle stretching on agility, range of motion, and the time of performing selected activities of daily living
PT-6	Deemah Almutairi Fajer Alshammari Reem Alazmi Maryam AlMutairi Hawraa Ghaloum	Tele-rehabilitation in Kuwait During COVID-19: Pediatric Physical Therapists' Knowledge, Attitude and Barriers

The Effect of COVID-19 During Lockdown on Low Back Pain Intensity, Prevalence, and Associated Risk Factors Amongst Students & Faculty members at Kuwait University: A Cross-Sectional Study

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INTRODUCTION: Musculoskeletal symptoms including low back pain (LBP) are commonly seen in COVID-19 cases and usually effect females more than males. Evidence exists that shows a relationship between LBP and COVID-19. However, there is no evidence on the population in Kuwait. Recall bias in LBP has been shown to be insignificant amongst workers and individuals have indicated that pain that started during the pandemic has been unforgettable. Therefore, we aimed to determine the effect of COVID-19 lockdown on low back pain intensity, prevalence, and associated risk factors amongst students and faculty member at Kuwait University.

METHODS: Four hundred seventy-one students and faculty members from Kuwait University participated in the questionnaire. The intake form included personal demographic information including age, education, medical conditions, hospitalization, physical activity levels, severity of pain, location of pain, location of participant before and during COVID-19 lockdown, and stress levels before and during the lockdown. Body Mass Index was also calculated. Ethical approval was provided by the Health Sciences Centre of Kuwait University.

RESULTS: Forty-one of the 471 participants were excluded due to ineligibility (n=430). A stratified random sample was conducted based on college of study/work. The point prevalence for low back pain before quarantine was 16.3%, and 21.9% after quarantine demonstrating a significant increase. The lower back was the most common area in the musculoskeletal system that participants complained of. During quarantine, a significantly higher intensity of low back pain was reported by participants ($p<0.001$). The number of participants who reported no pain before quarantine was significantly reduced during quarantine. During quarantine, a significantly higher number of participants sat always or most of the time during the day, did not practice physical activity and or reduced their weekly physical activity, experienced higher levels of perceived stress, and were studying/working online ($p<0.001$).

CONCLUSION: The COVID-19 quarantine resulted in significant increases in low back pain intensity and point prevalence. Back pain intensity was correlated with weekly physical activity and perceived stress.

KEYWORDS:
low back pain, COVID-19 quarantine, risk factors, prevalence

View

Poster

Parosmia, Dysgeusia During and Post COVID-19 in Adults.

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INTRODUCTION

-The world is currently dealing with the new coronavirus disease 2019.It is a global pandemic causing severe acute respiratory disease (SARS- CoV-2). It is a contagious disease that passes from one person to another.

-In the early stage of the current COVID-19 pandemic, many studies from various nations reported that smell and taste abnormalities, including parosmia (health conditions that distort the sense of smell) and dysgeusia(distortion of taste).

-Most patients with abnormalities of taste and smell due to COVID-19 show significant alternating on quality of life. Although a large group of people recovered their smell and taste within weeks, few have persistent problems including parosmia and dysgeusia.

-This study has not been conducted before in Kuwait ,and The research aims to assess and focus on clinical characteristics of parosmia and dysgeusia which are clear features of a patient with COVID-19.

METHODS

This study is cross-sectional study to assess smell and taste changes during and post COVID- 19. Sample and participants The patients found positive for COVID-19 infection or recovered from COVID-19 with the reverse transcriptase polymerase chain reaction (RT PCR) were included in the study .Sample included male and female patients. In addition, they should be adults above the age of 18 to 60 years old. Excluding variables are patients who suffered from any smell or taste disorders before developing COVID-19. Instruments the information will be obtained via online survey's.

RESULTS

129 participants responded to the survey. Most of which are females from the age of 20 to 29 years old. It was found that about 64% had smell / taste impairment after infection with Covid19. The biggest portion of the sample participants had anosmia after infection with Covid19, while the rest is roughly divided between those having hyposmia or parasomnia. In addition, the smell impairment is generally averaged moderate for the participants. The biggest portion of the sample participants had hypogeusia after infection with Covid19, while the rest is equally divided between those having ageusia or dysgeusia. 58% of the sample participants (who suffered from smell / taste impairment) have had it after diagnosis. . Approximately 3 quarters (73%) of the participants who had smell / taste impairment had totally recovered from the impairment. we conclude that people with at least one risk factor has higher chance of having smell / taste impairment.

CONCLUSION

In conclusion a total of 129 participants responded to the survey.. It was found that about 64% had smell / taste impairment after infection with Covid19. The biggest portion of the sample participants had anosmia after infection with Covid19, while the rest is roughly divided between those having hyposmia or parasomnia. In addition, the smell impairment is generally averaged moderate for the participants. The biggest portion of the sample participants had hypogeusia after infection with Covid19, while the rest is equally divided between those having ageusia or dysgeusia. 58% of the sample participants (who suffered from smell / taste impairment) have had it after diagnosis. Approximately 3 quarters of the participants who had smell / taste impairment had totally recovered from the impairment. we conclude that people with at least one risk factor has higher chance of having smell / taste impairment. we also conclude that people with pneumonia have relatively higher chance of having smell / taste impairment. To conclude, we strongly support the association between Parosmia and Dysgeusia during and Post COVID-19 in adults.

KEYWORDS:
COVID-19, Dygeusia, Parosmia

View

Poster

The Effect of Auditory Stimulus on Task Performance Among HSC Students at KUWAIT UNIVERSITY

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Auditory stimulation elicits a complex series of electric signals in the ear and nervous system. Rhythmic intervention has been widely used recently in treatment therapy. Music therapy can facilitate participation in rehabilitation process. Whereas Unpleasant sound have a negative impact on the brain. Our aim is to study the influence of auditory stimulation on task performance among HSC students at Kuwait University. Total of 66 healthy students from the health science center (HSC) participated in this study, forty-six females (60.52%) and twenty males (39.48%) with an age range between 18-26. All subjects solved the NL maze-like puzzle over three days. On each day, a different auditory stimulus was used during the solving puzzle time. A pleasurable sound, noisy sound and no sound were used for each day. All subjects were prone to the same level of difficulty and time was calculated to complete the puzzle. Wrong moves were calculated as an error score until completing the puzzle. The results showed that the longest completion time in seconds (p=001) and the highest number of errors (p=001) were recorded in a noisy environment. In contrast the no sound and the pleasurable sound acquired less time to complete the task and made less errors. Comparing male and female performance, it was found that females during the no sound and the noisy sound took longer time than males. Whereas, in the pleasurable sound males took longer to complete the task than females. Comparing male and female errors, it was found that among all interventions females have higher errors than males. We suggest that the sounds you hear in an environment that requires focus and high performance can play a major role in the level of performance. As the results showed we recommend that working environments are better performed with a quite surroundings. However, noisy environments are highly distracting. A quite environment helps the brain to focus on the task and perform faster with less errors.

The effect of muscle stretching on agility, range of motion, and the time of performing selected activities of daily living

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Mentor* professor Saud Alobaidi

Background: Activities of daily living (ADL) require agility and flexibility as well as a dynamic balance of the spine and lower extremities. Sedentary lifestyle, reduced physical activity, and lack of sport would impact significantly muscle length and function, which will affect flexibility and performance . Therefore, muscles on the lower extremities and the lumbar spine need to be flexible and agile. **Objective:** To screen for lack of flexibility and agility among Kuwaiti females age 18years old and above, To measure the time spent performing select ADL, and to compare the outcome measure after total free body stretching from the sitting program. Design: Quasi-experimental comparative study design. **Method:** Thirty healthy females age 18 years and above were served as convenient volunteers in this study. General health was screened by a questionnaire. Goniometer was used to measure hip, knee, and ankle ROM .Tape measure was used to measure the Range of motion of lumbar spine. Quadrant jumping test was used to assess agility. Finally, the time to perform ADL was measured before and after the intervention. **Results:** The main findings of the study showed that Lumbar Flexion has significantly changed after intervention. The median of Lumbar Flexion has decreased from 13.8 cm to 0 cm. In addition, All other joint ROM has changed significantly too. The median has increased by (5 to 10) degrees. Only the Knee extension showed no changes. Agility score has increased significantly after intervention from median=15 and median=20 for pre and post, respectively. The ADL performance time has improved significantly from 2.9s to 0.7s. The sit to stand (STS) was the most improved activity ($P<.05$). Before intervention the sit to stand performances was inversely related with agility scores (r=-.007 $P<.047$), And even showed good inverse relationship following intervention (r=-.558 $p<.001$).

View

Poster

The prevalence of physical and mental health and their association with studying habits among students in Health Science Centre in Kuwait University

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Many students in health care professions adapt bad studying habits, which may negatively affect their physical and mental health. However, there were no studies in Kuwait exploring the association of studying habits on the physical and mental health among HSC students. The aims of this study were to explore the prevalence of MSP and mental health problem, and to investigate the association between studying habits and physical and mental health among students in HSC in KU. A cross-sectional study was conducted using an online questionnaire. It included a demographic sheet, Nordic musculoskeletal questionnaire, and the depression, anxiety and stress scale. A total of 238 students completed the questionnaires. Most of the students aged between 21-23 years, with 220 (92.8%) were females. The prevalence of musculoskeletal pain was highest in lower back pain, followed by neck pain, and the least was wrist pain. The prevalence of stress was found to be the highest followed by anxiety then depression. Knee pain was significantly associated with year of study and attending clinical education (p= 0.012 and p= 0.048). Shoulder pain was associated with students who take less than 2 break time while studying (p=0.029). Elbow pain was associated with non-active students (p= 0.033). Female students has extremely severe anxiety compared to males (p=0.001), it is also associated with students who prefer to study alone (p=0.003).Depression was significantly associated with non-active students (p=0.005). The prevalence of musculoskeletal pain among HSC students were common, this could be attributed to muscle fatigue, and joints overuse commonly associated with bad posture and prolonged studying hours with no break time. Students at HSC were at high risks of mental problem, with extreme stress and anxiety, and depression. This can be justified by the nature of the intense course work. By working in a group, students have more opportunity to share thoughts, which decrease anxiety levels. Aerobic activities reduce the risk of depression and suicidal behaviour. It is recommended to raise student's awareness about maintaining good studying posture, taking frequent break time and exercise regularly. Finally, recruiting a social worker to help students overcome their mental struggles is recommended.

Tele-rehabilitation in Kuwait During COVID-19: Pediatric Physical Therapists' Knowledge, Attitude and Barriers.

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INTRODUCTION

Tele-rehabilitation (TR) is a newly developed form of telemedicine. It is the delivery of rehabilitation by telecommunication technologies. It has been provided for children with disabilities for over a decade in rehabilitation centres, schools, and private clinics (1). Tele-rehabilitation has been used during COVID-19 pandemic in Kuwait in both adult and pediatric populations, and in both governmental and private hospitals. The aim of this study was to investigate Paediatric Physical Therapists' (PPT) knowledge, attitude, and barriers toward using TR during COVID-19 pandemic in Kuwait.

METHODS

A cross-sectional survey design was adopted. An online questionnaire was used and repiloted to develop face validity based on the main author's recommendation for reuse (2). Only registered PPTs working in Kuwait in both Kuwait Physical Therapy Association (KPTA) and Ministry of Health of Kuwait were eligible to take part in this study. After the ethical approval, data collection started on the 10th of April and was extended for 4 weeks. The collected data then was analyzed using descriptive statistics.

RESULTS

A total of 39 responses were obtained, but only 38 responses were analyzed. The majority of PPTs reported that they have adequate knowledge about TR. However, only 13% of the participated PPTs used TR during COVID-19 pandemic in Kuwait. Most of the participants believe that TR is a reliable (n=25, 65.7%) and a valid (n=31, 81.5%) tool, and can benefit both the patients and the healthcare providers. The main barriers to implement TR in Kuwait highlighted by participants were technical issues (n=14, 55%), provider willingness (n=15, 39.4%), and staff skill issues (n=4, 39.4%).

CONCLUSION

Tele-rehabilitation is well recognized and accepted by the majority of the PPTs. However, there are many barriers that hinder the implementation of TR in pediatric rehab during COVID-19 in Kuwait. Further study is needed to investigate these barriers and suggest proper solutions among larger samples.

KEYWORDS:

Tele-rehabilitation, Covid-19, pediatric.

View

Poster

Falling tendency and risk factors among healthy youth population in Kuwait

Alzahraa alshammari [1], Aishah alajmi ,[1] Areej alshammari [1], Areej huzaifan,[1] Nouf alshammari [1]
Supervised by MS Anwar Aladwani [1]

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INTRODUCTION

Falling is an unintentional loss of balance that leads to failure of postural stability. It is a serious issue that's no longer constrained to the elderly. Recently, young people are reporting frequent falling incidence as well. Several contributing factors to that include physical, psychosocial, and environmental risks. Unfortunately, few studies have focused on falling in youth as more attention is given to falling in an elderly population. Moreover, no studies have been published on this area in Kuwait.

METHODS

A descriptive cross-sectional design was used in this study. A self-reported questionnaire with closed-ended questions was used to determine falling incidents among healthy youths aged 18-24. The survey includes sections that detected the history of falling, Copenhagen Burnout Inventory (MBI) - student version, Sleep Quality Scale (SQS), and perceived stress scale (PSS) as suggested falling factors. The data were analyzed using SPSS (V26) using a correlation test of chi-square. Ethical approval number 100

RESULTS

The overall participants were 65subjects. The ages ranged from 18 to 24, with a mean and standard deviation of 21+-1.5 (years). Approximately (50%)of the participants reported falling incidents in the past two years. Twenty-six percent of the faller occurred during the lockdown three times (47%). The frequent action before falling was walking with 50%, and the cause from their point of view was slipping (43%). The majority of the participants (80%) reported near-falling incidents in the past two years, with 60% after sleeping. Approximately (50%) have moderate burnout scores, (77%) have moderate stress levels, and (55%) have sleep problems. There was a strong correlation between medical conditions and falling (P-value <0.05), whereas there was a moderate to a weak correlation between lecture hours and teacher-related burnout and falling

CONCLUSION

The results showed that falling is common among healthy youth in Kuwait due to factors that differ from those previously identified among the elderly population. It has been concluded that medical conditions, mainly anemia and vitamin D deficiency, are the apparent causes of the falling incidence. Other significant causes of falling were a high number of study hours and experiencing teacher relating burnout.

KEYWORDS:

youth, falling, risk of falling

View

Poster

Can Ineffective Breathing in Dentists be as a Result of Posture and Neck Pain?

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INTRODUCTION:
Dentistry is a physically and mentally demanding profession in which dentists are at a high risk of work-related diseases and musculoskeletal disorders (MSD). Furthermore, neck pain has a tremendous impact on the dentist's health and quality of life (Kapreli et al., 2009).
Since the neck is connected to the thorax through many muscular, fascial, and neural structures, the neck will have an impact on it, potentially causing dysfunctional breathing (Stephen et al., 2021). Since neck pain and poor posture are likely to contribute to breathing problems, the study aims to determine if neck pain and poor working posture can lead to ineffective breathing in dentists.

METHODS:
Ethical approval was obtained (Reference number 125) for this quantitative cross-sectional correlational study that included twenty dentists with neck pain and another twenty with no neck or back pain. Neck pain was measured using The numeric rating scale (NRS) and neck disability index (NDI); dysfunctional breathing using the Nijmegen Questionnaire (NQ), Self-Evaluation of Breathing Questionnaire (SEBQ), breath-hold time, and respiratory rate (RR); and working posture was assessed using The Rapid Upper Limb Assessment (RULA). The data obtained were analyzed using the Statistical Package for the Social Sciences (SPSS) using Pearson Product Moment Correlation (PPMC) and an independent sample t-test.

RESULTS:
The results of the correlation analysis show that NDI is positively and significantly related to SEBQ ($r=0.419$, $p<0.05$). NQ is also significantly and positively associated with NDI ($r= 0.354$, $p<0.05$). Interestingly, there is no relationship between NDI and RULA. The independent sample t-test also infers no statistical difference between participants with and without neck pain in terms of risk associated with working posture. On the other hand, RULA is significantly associated with SEBQ ($r= 0.342$, $p<0.05$), so we can say that the more the risk associated with working posture, the higher the measure of dysfunctional breathing.

CONCLUSION:
According to the findings, an individual's breathing can be adversely affected by an adapted unbalanced working posture and neck pain resulting in dysfunctional breathing.

KEYWORDS:
Neck pain, Ineffective breathing, Dentists, Posture, RULA.

View

Poster

Arabic Translation of the Rosenbaum Concussion Knowledge and Attitudes Survey - Student Version (RoCKAS-ST)

Jouzah Albous, SPT[1], Madhawi Almutairi, SPT[1], Nourah Alenezi, SPT[1], Shaikah Alfadhli, SPT[1], Shouq Aldhafeeri, SPT[1], Anwar Almutairi, PT, PhD[1]

[1]Physical therapy, Allied health sciences, Kuwait University, Kuwait

INTRODUCTION

Sport related concussions (SRC) underreporting, and injury mishandling may be resulted from athletes' lack of awareness about this topic. Further investigation of having awareness of SRC cases is needed in Kuwait to create a more effective concussion management solutions for adolescent athletes. Therefore, the aim of this study is to examine the knowledge about and attitudes towards concussion among adolescent athletes between the age of 13-20 years, involved in contact and non-contact sports and to evaluate the psychometric properties (i.e., test-retest reliability and internal consistency) of the Arabic version of the RoCKAS-ST.

METHODS

Adolescent athletes aged 13-20 years old, both genders, who participating in organized team sports for ≥12 months were recruited. The participants were examined using the Arabic version of RoCKAS-ST questionnaire that was translated using the forward-backward method. Demographic data and sport history were also collected.

RESULTS

One-hundred fifty-six athletes (n=156) participated in this study (mean age= 15.5, SD= 1.76). Most of the participants were males (n=140, 89.7%) and were professional football players (n=94, 60.3%). The internal consistency for the CKI and CAI ranged between fair and very good (α= 0.225 & 0.641m respectively). The test-retest reliability of CKI score was 0.74 (95% CI - 0.111- 0.931, P<0.05) and of CAI was 0.794 (95% CI 0.324- 0.937, P<0.05). The average time between the 2 tests was 9.35 ± 2.44 days.

CONCLUSION:

RoCKAS-ST-A is a reliable and feasible tool to examine the knowledge about and attitudes toward SRC in young athletes. Young athletes in Kuwait exhibited decreased knowledge about and unsafe attitudes toward SRC.

KEYWORDS:

Sport-related concussion, knowledge, attitude, athletes, adolescents

View Poster

Radiologic Sciences (RS)

Awarded Posters RS

No.	Student Name	Title
RS-2 (Diagnostic Radiology)	Albatool Aldaham Zahraa Mesri	Patient Size Based Dose Estimate in High Resolution Chest Computed Tomography Imaging
RS-8 (Nuclear Medicine)	Fajer AlShammari Sarah AlKaabi Muna AlMshari	The Influence of kV on Attention Correction and Quantitative Information in SPECT/CT Images

Reporting Breast Cancer in Kuwaiti Women Through the Kuwait National Mammography Screening Program (KNMSP) in the Last Five Years Period

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Department of Medical Imaging, Al-Amiri Hospital, Ministry of Health, P.O. Box 5, Sulaibikhat, 1300, Jamal Abdel Nasser Street, Kuwait

INTRODUCTION: Breast cancer is the most common malignancy among women in Kuwait and it represents 39.8% of all female cancer cases. The aim of this study is to report the data of breast cancer among Kuwaiti women who attended the Kuwait National Mammography Screening Program (KNMSP) in the last 5- years using full-field digital mammography (FFDM).

METHODS: The data of 20,483 mammography screens done for 14,773 Kuwaiti women who attended the KNMSP from 2014 to 2019 to screen for breast cancer was included. The mammographic images in craniocaudal (CC) and mediolateral oblique (MLO) projections was correlated with histopathology findings

RESULTS: The mean age ±SD was 51.8 ± 8.2. The participation rate was 7.8 % of the target population. A total of 233 (1.6%) women had breast cancer detected. The majority of breast cancer cases were reported in the age group 45-49 years (21.5%). The KNMSP study recall rate for 5-consecutive years was ranged from 11.9 % - 16.5% (mean 14.3%). The detection rate of ductal/lobular carcinoma *in situ* and invasive breast cancer were 2.5 and 13.6 per 1,000 screened women, respectively. The histologic features of breast cancer showed that invasive ductal carcinoma was the most common type. The mean tumor size ±SD was 19.5 ± 14.3. The interval cancers detected were 34 cases and the retention rate was 29.2%.

CONCLUSIONS: FFDM screening increases mammography's clinical performance in breast cancer detection. This would have a positive effect on the mortality rate.

KEYWORDS: Breast cancer, full-field digital mammography, screening mammography, Kuwait national mammography screening program

View

Poster

Patient Size Based Dose Estimate in High Resolution Chest Computed Tomography Imaging

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INTRODUCTION

Computed Tomography (CT) scans deliver much higher radiation doses to the patient than other radiologic imaging procedures. The volume CT dose index ($CTDI_{vol}$) and Dose-Length-Product (DLP) are commonly used as radiation dose values. These values indicate the amount of radiation that entered the patient, but not what the patient absorbed. There is a need to estimate the radiation dose to the patient. The purpose of this study is to evaluate patient size specific dose values for high resolution chest CT (HRCT) scan in adults.

METHODS

Images of 75 randomly selected patients who underwent HRCT between November 2021 and April 2022 were reviewed. Patient size of Antero-posterior (AP) and/or lateral dimensions from scout and axial images were measured. CT image acquisition parameters, $CTDI_{vol}$, DLP and scan range were recorded. Patients size measurements from axial and scout images were compared using paired t-test. Pearson correlation test was carried out between $CTDI_{vol}$, DLP and patient size measurements. All statistical analyses were done at a significance level of $p < 0.05$.

RESULTS

Our patient sample had an age range of 15 to 82 Years, mean lateral size of 422 mm and AP size of 253 mm. The average $CTDI_{vol}$ and DLP were 11.0 mGy and 375 mGy.cm respectively. Strong and statistically significant correlations were observed between $CTDI_{vol}$ and lateral size from scout and axial images ($r>0.853$; $p<0.001$); between DLP and lateral size ($r>0.709$; $p<0.001$). AP size from axial images showed moderate correlation with CTDIvol and DLP ($r>0.653$; $p<0.001$). For 300, 400 and 500 mm lateral size patients in HRCT, the $CTDI_{vol}$ were 5.5, 10.0 and 14.5 mGy respectively and the DLP were 200, 350, 475 mGy.cm respectively. The lateral size measured on the scout image at the location of the middle slice of the CT correlated best with $CTDI_{vol}$ & DLP.

CONCLUSION

Our study established that the $CTDI_{vol}$ and DLP correlated well with the lateral size of the patient. The lateral size measured on the scout image can be used to estimate size based radiation dose for HRCT before the scan is carried out.

KEYWORDS:

Computed Tomography Dose Index, High resolution Chest CT, Dose Length Product

View

Poster

The Assessment of Patient Satisfaction Towards Diagnostic Radiological Services in Kuwait's Hospitals

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Background:

Radiology department has a vital part in patient's journey because it includes the diagnosis and treatments of diseases. Quality radiological care is fundamental in achieving improved patient experiences. Patient satisfaction is an important parameter towards the understanding of clinical performance and clinical effectiveness. It is affected by many factors like waiting time, appointment dates, staff treatment, and effective communication with the health care team. These factors have an impact on the quality and the delivery of the overall patient care in the radiological departments. Investigating and understanding patient perspectives are critical for the development of improved strategies in health care systems The aim of this project was to assess the patient satisfaction towards radiological services in Kuwait's hospitals and to highlight any possible improvements in patient care.

Methods:

50 patients who were undergoing different imaging procedures participated in this questionnaire-based study. The survey was developed by the European Society of Radiology (ESR) and it requested information regarding 1. Demographics and 2. Patient satisfaction during the conducted imaging procedure. Ethical approval was obtained from the HSC Ethics Committee and all the participants provided written informed consent for participation in the study. Data are presented as mean $\pm$ SD and percentages were also calculated to provide useful information for interpretation. The Kruskal Wallis test was used to investigate the statistically significant differences between different imaging modalities with p-values <0.05 demonstrating statistical significance.

Results:

Overall, patients showed high satisfaction rates in different categories. In the overall satisfaction rates, 50% of the respondents rated the service as excellent, 38% rated it as good, and only 12% rated it as neutral. Additionally, most of the respondents were satisfied with the waiting time, with the hospital directions for the radiology department, and with the reception staff. Regarding the waiting area, the respondents mostly answered good to the overall impression of the waiting area.

Conclusion:

This study provided an insight of the patient satisfactions towards radiological services in routine and special examinations in Kuwait's hospitals and highlighted the necessary improvements in some areas to achieve a quality health care.

Keywords:

Patient satisfaction, radiology, quality health care

View

Poster

Patients' Satisfaction Towards Radiological Services and Associated Factors in

Kuwait Ministry of Health Hospitals.

Dalal Aldriweesh and Fatmah Darwesh Radiology depatment / Faculty of Allied Health Sciences,

Kuwait Universit

Diagnostic radiology department is an important department at any hospital as it receives patients of all ages and health conditions that are diagnosed through medical imaging. Therefore, the radiology department must focus on integrated healthcare and ensure high quality, patient comfort, safety, and satisfaction. Patients' satisfaction with health services is an important matter of quality care that must be taken into consideration. Radiology departments in various government hospitals in Kuwait are working hard to provide the best possible service in pursuit of patient comfort and aspire to reach the highest levels of service for patients. Our study aimes and focuses on level of patients' satisfaction with health services provided by different radiology departments in kuwait government hospitals (Farawania-Mubarak-Adan-Jahra-Sabah-Amiri) by interviewing patients and sending an online questionnaire electronically. The findings will help us to improve the radiological service delivery and improve on patient satisfaction. A study done in 2016(1), found that the overall patient satisfaction from 321 patients was 71.6% (1). Another study was done on 300 adult patients and they took three months, found that the overall satisfaction was 75% (2). Additionally, a study was on 376 patients and 72.6% is the overall patient satisfaction with radiological services (3).

View

Poster

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Using of Machine Learning Models to predict ^{131}I thyroid uptake Based on ^{99m}Tc thyroid scan and related factors

Fatema Shuwaird, Joumana Alramzi, Supervisor: <u>Dr. Layla Ghadhanfer</u>

Introduction:
Thyroid uptake using ^{131}I and thyroid scan with ^{99m}Tc are radionuclide procedures used to determine thyroid function and pathologies respectively. Thyroid uptake and scintigraphy using ^{99m}Tc-Pertechnetate has proven to be more advantageous than ^{131}I alone, since the images have better quality, the procedure is faster and the patient is exposed to a lower radiation dose. Despite high radiation burden of ^{131}I, thyroid uptake is measured accurately because Iodine is trapped and organified by the thyroid. Machine learning (ML) is a subset of Artificial intelligence in which the computer has the ability to learn from the data. ML model is a way to explain relationships between data and to translate input observations into outputs.
Aim: to construct ML model to predict the value of radioactive iodine uptake (RAIU) through the value of thyroid uptake using ^{99m}Tc from thyroid scintigraphy.

Methods:
Data were collected between period (January 2018 to March 2022) from patients underwent both thyroid uptake and scintigraphy using RAIU and ^{99m}Tc plus other factors such as weight, injected dose of ^{99m}Tc & ^{131}I, TSH and T4 . All data were imported and visualized in python programming language (python 3.9) using Jupyter notebook as an editor. The coefficient of determination (R^2) and root mean squared error (RMSE) of two different machine learning models in predicting RAIU values were determined i.e. Linear regression and Polynomial.

Results:
R^2 and RMSE for single (^{99m}Tc uptake as the only independent variable) linear regression model were 0.45 and 15 respectively; however, R^2 and RMSE for single polynomial regression model were 0.68 and 12.18 respectively. Better correlation was found when other factors were included besides ^{99m}Tc uptake, R^2 and RMSE for multi-linear regression model were 0.48 and 16.6 respectively and for multi-polynomial regression model were 0.85 and 8.35.

Conclusion: ML algorithms can be developed to improve accuracy as second readers systems for ^{131}I uptake when ^{99m}Tc results are available.

Keywords: RAIU, Thyroid scintigraphy, Machine learning, Model performance.

The public awareness of the important role of the radiology departments during Covid-19 pandemic

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During the past three years, the world was exposed to a global epidemic, which is Covid-19 epidemic. The COVID-19 has spread very rapidly over many countries around the world, producing an outbreak of acute infectious pneumonia. This epidemic has injured and killed many people, hence the effective role of radiology departments in confronting this epidemic through early diagnosis, evaluating severity and disease prognosis of confirmed patients with COVID-19. The aim of this research is to study the public awareness of the role of radiology departments during the Covid-19 pandemic and the knowledge of the public about radiology departments. We predicate that the number of Covid-19 cases have extremely increased and this affected the public awareness about the important role of radiology departments.

Stability of automatic exposure factors in Digital Breast Tomosynthesis with different thicknesses

Dalal Alroudan, Asmaa alnesafi, fatima alhoolan, Dr.Khalid Alkhalifah

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Introduction:
Digital breast tomosynthesis (DBT) has been broadly followed in breast imaging in each screening and diagnostic settings. The blessings of DBT are properly established. Compared with two-dimensional digital mammography (DM), DBT preferentially will increase detection of invasive cancers with out accelerated detection of in-situ cancers, maximizing identity of biologically large disease, whilst mitigating over-diagnosis.

Method:
senographe pristine DBT system with a rotation angle -180/+180 , 24*29 cm detector , and Rh target, and Ag filter material . A 015-model phantom with 4 cm thickness was made by american CIRS to assess the image quality and various thicknesses of Perspex sheet .

Discussion: Our experiment showed that if we increase the thickness the ESD, MGD, CNR, and SNR will be affected. By analyzing our data in table(1) it showed that thickness and CNR have a negative correlation, that means when the thickness increased the CNR decreased and the reason of this is that when the thickness increases the tissue produces more scatter radiation therefore, it will reduce contrast. Clinically, if we apply more compression as far as the patient can tolerate the pain we will improve the CNR. As the thickness increased the Mean glandular dose (MGD), which is the primary quantity of interest related to the risk of radiation induced cancer in breast imaging, increased. Signal to noise ratio (SNR) was decreased with the increased thickness. As a result, the resolution was decreased each time we increase the thickness and to improve it we have to apply more compression for the breast.

Result:
As a result of the experiment as expected that by increasing the thickness at a 34 kVp
The entrance skin dose and mean glandular dose are increasing as shown in (table 1).Figure 2 is the relationship between FOM and thickness and can notice that by increasing thickness the FOM will decrease. Figure 3 is the relationship between CNR and thickness and as increasing the thickness the CNR decreased. Figure 4 is the relationship between SNR and Thickness, increasing the thickness result in decreasing the SNR.

The Influence of kV on Attention Correction and Quantitative Information in SPECT/CT Images

Fajer AlShammari[1], Muna AlMshari[1] and Sarah AlKaabi[1], Dr. Ajit Brindhaban[1]
[1]Department of Radiologic Sciences, Faculty of Allied Health Sciences, Kuwait University, Kuwait.

INTRODUCTION

In Single Photon Emission Computed Tomography (SPECT) imaging, correction for γ-rays attenuated by patient's tissue leads to underestimation of radiopharmaceutical uptake by lesions. X-ray Computed Tomography (CT) images of patients are being used to estimate the amount of attenuation and apply corrections to SPECT images. The aim of this study was to investigate if increasing the X-ray energy (kV) used in CT scan affects the attenuation correction (AC) of SPECT images in terms of lesion detection and characterisation.

METHODS

The lesion mimicking cylinder in a CT Electron Density Phantom (EDP) and spheres in NEMA phantom with 270 kBq/mL of ^{99m}Tc activity was scanned twice using a Siemens Symbia SPECT/CT scanner. The NEMA phantom had target-to-background ratios of 0 and 10 respectively for two scans. EDP contained materials mimicking different tissues normally found in the human body without any background activity. Images were reconstructed without AC and with AC using CT images acquired with 80, 110 and 130 kV respectively. Regions of interest were used to obtain average counts in the lesions and line profiles were used to measure lesion size (diameter). Kruskal-Wallis test was used to analyse statistical differences in counts and diameter measurements among different images. Statistical significance was set at $p<0.05$ level.

RESULTS

In all images statistically significant differences ($p<0.007$) were seen in average counts between images with AC and without AC. The images of the NEMA phantom without background activity, statistically significant differences ($p = 0.011$) were seen in the average counts per pixel when kV was changed from 80 to 130. In all other images, significant differences in counts were not observed. The lesion size values increased with increasing kV used for AC, underestimating large lesion at 80 kV by up to 10% and overestimating small lesion sizes.

CONCLUSION

This study has demonstrated that attenuation correction using different kV for CT images can influence the average counts which is used to assess physiological activity. Lesion size measurements were also influenced by the kV selection for the CT scan. Further investigations are needed to determine overall effect of kV selection in SPECT/CT imaging.

KEYWORDS:

Attenuation Correction, Lesion Detection, SPECT/CT.

View

Poster

The effect of metal artifact on attenuation correction map in the SPECTCT and PET-CT

Salem Al-Shammari, Abdulaziz Al-Shammari Supervised by Prof. Layla A. Ghadanfer
Radiology Sciences Department, Faculty of Allied Health Sciences, Kuwait University

SPECT-CT and PET-CT are two multi-modalities used for anatomical and functional assessment of different diseases. Metal artifact degrades the diagnostic value of CT images and consequently affecting radionuclide imaging particularly in patients with prosthesis. **Aim**: to investigate the effect of KVp and mAs on the attenuated corrected (AC) images using Jaszczak phantom with metal insertions. **Methods**: Metallic screws with different diameters (25.4, 31.8, 38 mm) were attached to three spheres in Jaszczak phantom. ^{18}F and ^{99m}Tc were used for PET and SPECT respectively. Different values of kVp (80 to 140) and mAs (25 to 370) were used. Data were reconstructed with ordered subset expectation maximization (OSEM). Multiple ROIs were drawn around the spheres and background (BKG) to evaluate SD and % increase of count in AC and to calculate significant value, P-value using period sample test. **Result:** Formation of streak artifact around the metals in AC images. In SPECT/CT, 32%±2.9 increase of count was found when increasing KVp. Overestimation of 410±40 was noticed on the metals compared to an increase of 284%±2.4 in BKG. KVp has insignificant effect on the BKG. Increasing mAs showed insignificant effect on both metals & BKG (p value 0.47, 0.34). In PET/CT, 9.2% decrease of count was found when increasing KVp and using high KVp to minimize streaks artifact. Overestimation of 670%±112 was noticed on the metals compared to an increase of 725%±13 in BKG. Insignificant decrease of % of count when increasing mAs p-value 0.42. Overestimation of 645%±62 was noticed on the metals compared to an increase of 710%±12 in BKG. **Conclusion**: The effect of metal artifact in CT images have a major and significant effect on SPECT/CT images as an increase of count in and around the metal leads to false positive results. This can be minimized by decreasing KVp. This artifact has lesser effect on PET/CT as mild increase of count in and around the metal has been visualized which can be minimized by increasing KVp. It is recommended to interpret SPECT and PET images with AC in patients with prosthesis.

Key words: Attenuation correction,
computed tomography metal artifact, KVp, mAs

View

Poster

The Effect of Q.Clear & Scan Time on the Image Quality of Brain PET/CT using 18F-FDG

Students: Rawnaq aldhafeeri , Aldana alajmi, Riyam alshammeri

Supervisor: Dr.Layla Ghadhanfer

Background: Q.Clear is a new penalized-likelihood reconstruction algorithm for PET/CT. It improves image reconstruction quality, quantification accuracy, and signal-to-noise ratio (SNR). **Aim**: to determine the impact of the Q.Clear algorithm at different beta values and to investigate the reduction of acquisition time of brain PET/CT scan for patients with dementia whose having difficulty in stability during acquisition.

Methods: Retrospective data were collected from 50 dementia patients who undergone Brain PET/CT scans using 18F-FDG. Single bed was acquired for 10 min using 256 x 256. Attenuated corrected images were reconstructed by Q.Clear with beta values 100 to 600. The software allowed us to change the 10 min acquisition time to 7 min and 5 min without scanning the patients. ROIs were drawn on the grey matter and the cerebellum and on white matter as background. SUVmax of Cerebellum, background variability (BV) of white matter, Signal-to-noise ratio (SNR) of grey matter was measured and analyzed.

Results: Average count in grey matter of AC images showed a 371% increase compared to None AC. At constant beta value, insignificant difference was found in SUVmax of cerebellum at 7min and 10min (p value= 0.06). However, 5min image showed significant difference when compare to 10min image (p value= 0.017). Average SUVmax of cerebellum at 7, 10min image was 7.45 +/- 0.846, and at 5min image was 6.37+/- 0.38. The grey matter at 7,10min showed insignificant values of SUVmax. However, SNR of grey matter at 5min image showed significant decrease compared to other scan times. Maximum SNR and minimum BV was obvious at beta value=600 for all cases at certain time of acquisition

Conclusions: The reduction of scan time from 10 min to 7 min is important in scanning patients with dementia without degrading the image quality. It is recommended to use beta value of 600 in FDG brain imaging.

Keywords : Q.Clear , SUVmax, SNR , BV

View

Poster

Health Science Center Participants (HSC)

Awarded Posters HSC

No.	Student Name	Title
HSC-1	Duaah Almarzouq Godwin Budadasari May Al-Maghrebi	The role of TXNIP/NLRP3 inflammasome pathway in NADPH oxidase-induced ROS and germ cell apoptosis

The role of TXNIP/NLRP3 inflammasome pathway in NADPH oxidase-induced ROS and germ cell apoptosis.

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Introduction: Testicular ischemia reperfusion injury (tIRI) is considered the underlying mechanism for testicular torsion and detorsion (TTD), a urologic emergency affecting young males. This injury causes enhanced production of reactive oxygen species (ROS) increasing cellular oxidative stress leading to inflammation and germ cell apoptosis (GCA). This study tests the effect of NADPH oxidase (NOX) on the thioredoxin interacting protein (TXNIP)/ NOD-like-receptor-3 (NLRP3) inflammasome pathway, oxidative stress and GCA during tIRI.

Methods: Thirty-six male Sprague-Dawley rats were divided into three groups: sham, unilateral tIRI only and tIRI treated with apocynin, a NOX inhibitor. The tIRI rats underwent an ischemic injury for 1 hour followed by 4 hours of reperfusion. Histological analysis was used to evaluate spermatogenic damage, while real time PCR was used to measure the gene expression of apoptosis markers and inflammasome components. Oxidative stress, caspase activation, and NOX activity were assessed using biochemical assays. Inflammation and apoptosis markers were detected by ELISA and Western blot.

Results: As a result of tIRI, there was a decrease in total antioxidant capacity and suppressed activities of superoxide dismutase and catalase. Spermatogenic damage was associated with increased GCA reflected by an increase in the activities of caspases 1, 9 and 8. Tissue inflammation was demonstrated by a marked increase in the concentrations of myeloperoxidase, IL-1□ and IL-18. The TXNIP/NLRP3 inflammasome pathway was activated both transcriptionally and post-transcriptionally during tIRI. Inhibition of NOX had a protecting effect against GCA, oxidative stress and testicular inflammation.

Conclusion: Based on the results of this study, the TXNIP/NLRP3 inflammasome pathway plays a vital role in tIRI and is regulated by NOX.

Funding Agency:

Keywords: Testicular Ischemia Reperfusion Injury, NADPH Oxidase, Inflammation.

View Poster

Cost of In-patient Management of Covid-19 Patients in a Tertiary Hospital in Kuwait

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Background: Among the GCC countries affected by COVID-19 infections, Kuwait was impacted with 632,074 cases and 2,555 deaths as reported by WHO on May 9, 2022. However, the impact of the COVID-19 epidemic on the economy of Kuwait especially in health sector is unknown.

Objective: The aim of this study is to determine the total cost of COVID-19 in-patient management in a hospital in Kuwait.

Method: Retrospective design was employed in this study. A total 488 Covid-19 patients admitted to a tertiary hospital was randomly selected for this study 1st May to 31st September 2021. Data on sociodemography, length of stay (LOS), discharge status and comorbidity were obtained from the patients' medical records. Among others, data on costing in this study covers administration, utility, pharmacy, radiology, laboratory, nursing and ICU cost. Unit cost per admission was imputed using step-down costing method with three levels of cost-centre. The unit cost was finally multiplied with the individual patient's length of stay to obtain the cost of care per patient per admission.

Findings: The mean cost of Covid-19 inpatient per episode of care was KD 2,258 (SD=2,092) with the average length of stay of 9.6 (SD=8.9) days per admission. The top three components of cost for the treatment of Covid-19 were the physician and nursing cost (KD 951; SD=882), 42.1% of the total cost, followed by the ICU cost (KD 466; SD=432), 20.6% of the total cost and laboratory investigations cost (KD 229; SD=213), 10.1% of the total cost.

Conclusion: The costing information can assist hospital managers and policy makers to design more efficient interventions especially for management of high-risk groups.

Keywords:

Cost, Covid-19, Hospital

View

Poster

Analysis of Multiple Sclerosis Micro RNAs Biomarkers in Kuwait

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Introduction:

MicroRNA (miRNA) is a small molecule of non-coding RNA that functions in post-transcriptional regulation of gene expression. Recent studies found that miRNAs are dysregulated in Multiple Sclerosis (MS) which is a chronic neuroinflammatory, autoimmune disorder that causes demyelination of the central nervous system. Our aim was to replicate the analysis of selected MS miRNA biomarkers (miR-145-5p, miR-326, and mir-20a-5p) to determine their association with MS in a Kuwaiti cohort.

Methods:

A total of 59 MS patients with a ratio of 2.2:1 female: male and 44 sex and an approximate age matched healthy Kuwaiti controls were selected. The miRNAs' expression of hsa-miR-20a-5p, hsa-miR-145-5p, and hsa-miR-326 were evaluated in plasma samples by Real-Time quantitative PCR, and the delta-delta Ct method ($2^{-\Delta\Delta Ct}$) was used to determine miRNA fold expression. **Results:**

the expression of hsa-miR-326 was significantly decreased in MS when compared to healthy control (p = 0.002), while hsa-miR-145-5p and hsa-miR-20a-5p showed no differences. Hsa-miR-145-5p expression showed a significant increase in MS males when compared to male healthy controls (p = 0.025). In addition, the expression of hsa-miR-326 maintained association with MS diagnosis in males (p-value= 0.047), and females (p-value= 0.016) separately.

Conclusion:

MS patients have a decreased expression of miR-326, highlighting a potential use of this miRNA as a biomarker for MS diagnosis in the future. The expression of hsa-miR-145-5p appears to be a male-specific MS biomarker.

Keywords: Analysis, Multiple Sclerosis, Kuwait, Micro RNA.

Prevalence of asthma among migrant workers who attend Shuaiba Industrial Medical Center in the State of Kuwait

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INTRODUCTION

Asthma is a chronic inflammation of the airways, which leads to the narrowing of the alveoli causing shortness of breath and difficulty breathing. Occupational asthma is associated with a specific work environment as opposed to out of work environment. In addition, there is an existing association between asthma and airborne exposure to chemicals that are released from industrial processes such as petrochemicals, polyaromatic hydrocarbons, formaldehyde, chlorine, ammonia, nitric oxides, isocyanates, acid anhydrides, and metals (metal salts). Worldwide, the prevalence of asthma increased due to mostly lifestyle and environmental and occupational risk factors with genetics playing a minor role. This study aims to assess the risk factors and exposure to harmful chemicals and substances that are emitted from Kuwait's industries that may be associated with asthma among their workers.

METHODS

Secondary data extracted from Shuaiba Industrial Medical Center's (SIMC's) records were analysed using SPSS. The data sample size was 3478 in 2018 and 3807 in 2019, which was obtained from occupational health physicians' records including diagnosis of asthma, exposure to emitted chemicals, number of working years, age, the health status of workers, rank, position, and experience, and smoking status.

RESULTS

The prevalence of asthma in 2018 and 2019 were 0.8% and 0.6% respectively, which were significantly associated with age. The Chi-square test showed that there was a significant association between the working year groups and bronchial asthma with a p-value 0.000. In 2018, age categories (p-value= 0.007) and Working Years Groups (p-value=0.029) have an association with bronchial asthma. While in 2019, age categories (p-value= 0.001) and BMI categories (p-value=0.050) had an association with bronchial asthma. There was a significant association between fitness to work and bronchial asthma as in 2018, 22.2% of the UNFIT workers had bronchial asthma.

CONCLUSION

In this study, the evidence showed that bronchial asthma is prevalent among migrant workers, who are attending SIMC in Kuwait. In addition, in 2018, bronchial asthma has a significant relationship with age categories, work years groups, and determinants of fitness. Otherwise, in 2019, bronchial asthma has an associated relationship with age categories and determinants of fitness.

KEYWORDS:

asthma, prevalence, migrants workers, Kuwait

Sex differences in the gene expression of neuroimmune molecules in the spinal cord of a mouse model of antiretroviral-induced neuropathic pain

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Background: Nucleoside reverse transcriptase inhibitors (NRTIs), antiretroviral drugs used to treat human immunodeficiency virus (HIV) infection, can cause painful peripheral neuropathy and neuroinflammation. In a recent study an NRTI, zalcitabine (ddC), was found to induce mechanical allodynia and increase proinflammatory cytokines in the brain of female mice without microglia activation. In other models of neuropathic pain microglia activation was important for the pathophysiology of neuropathic pain in male mice while T cells were important in female mice. Therefore, we investigated whether there are sex-dependent differences in the development of neuroinflammation-induced by NRTIs.

Methods: Female and male mice (BALB/c strain) were treated intraperitoneally once daily with 25 mg/kg ddC or its vehicle for 5 consecutive days. On day 7, the mice were sacrificed, and spinal cords dissected out. Total RNA was extracted from the spinal cords, cDNA synthesized by reverse-transcription, and the gene transcripts of markers of microglia (*Cd11b*), astrocytes (*Gfap*), and T cells (*Cd3e*), signaling molecules (*Mapk1*, *Mapk14*), molecules involved in immune cell activation state (*Cd200*, *Cd200r1)*, pro-inflammatory and anti-inflammatory cytokines (*Il1b, Tnf* and *Il10)* were quantified by real time RT-PCR on QuantStudio™ 7 Flex Real-Time PCR System. GraphPad Prism 9.0 was used for data presentation and statistical analysis. Mann-Whitney U-test was used to compare responses between different treatment groups. The data were expressed as median and interquartile range. The results were considered significant when $p < 0.05$.

Results: The relative expression of mRNA of *Cd11b*, *Cd3e*, *Cd200r1*, *Mapk1*, *Il1b, Tnf* and *Il10* was significantly upregulated in the spinal cords of female (p-< 0.05), but not male (p-> 0.05), mice treated with ddC compared to mice treated with vehicle, whereas ddC treatment had no significant effects on the expression of *Gfap, Cd200* and *Mapk14* in both male and female mice (p-> 0.05).

Conclusion: The results show that the changes in neuroimmune molecule transcripts in the spinal cords of BALB/c mice during antiretroviral drug-induced neuroinflammation are sex dependent. This suggests that female mice are more prone to antiretroviral drug-induced neuroinflammation than male mice.

Keywords:

neuroinflammation; ddC; sex-differences, BALB/c mice, spinal cord

View

Poster

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