كلية العلوم الطبية المساعدة
Faculty of Allied Health Sciences

14th Student Research Day

2021

Under the Patronage of Acting President of Kuwait University

Professor Bader AlBdaiwi

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Abstracts

Vice President for Research

Prof. Rashid Hamad Al-Anezi

Dr. Rashid Hamad Al-Anezi is a Kuwaiti legal academic, International Arbitrator and a private lawyer. Dr. Al Anezi holds PhD in International Law from Cambridge University, 1990.

He joined as Faculty member in the College of Law in Kuwait University. He was the head of International Law Department & Assistant Dean in the College of Law. He is a professor of International Law in the College of Law at Kuwait University. Dr. Al Anezi has published six books and more than twenty articles in both Arabic & English.

Dr. Al Anezi is a member of various international organizations and associations that some are part of the legal field and some are not. He is a member of the Kuwait Bar Association, Kuwait Environment Protection Society and the American Society of International Law. He is also a member of the Ethics Panel of Fédération Internationale de Natation (FINA).

Dean's Message

Dr. Suad M. AlFadhli

Dear Students, Staff Members and Colleagues,

It is with great pleasure that I welcome all the staff and students to the 14th Student Research Day of the Faculty of Allied Health Sciences (FAHS) of the Kuwait University.

Research is the driving force of any academic institution and each year the FAHS Student Research Day showcases some of the broad range of research activity in the faculty, and recognizes the opportunities that are available to our students, many of whom move into the workforce or continue on to graduate or professional schools. The research experience they gain as students proves to be invaluable in their careers in science.

This day also recognizes the intensive nature of the research carried out by our undergraduates and graduate students and the teamwork and commitment of the Faculty members who supervised the Research Projects.

My hope is that the Student Research Day in the Faculty of Allied Health Sciences should promote intellectual curiosity, appreciation of scholarly inquiry and the ability to work both independently and collaboratively.

My sincere thanks to the President of Kuwait University, University and Faculty Administration, the members of Organizing Committee, Students, Academic and Support staff at the Faculty of Allied Health Sciences who have made this year's event possible.

I wish all our students great success in their academic and professional life.

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

Vice Dean's Message

Dr. Rana Al-Awadhi

Greetings!

It is indeed an honor to welcome you all to the 14th Annual Student Research Day hosted by the Faculty of Allied Health Sciences. This is my second event since I have taken charge as the Vice Dean of Research & Postgraduate Studies. I had many plans to be incorporated, unfortunately, due to national health restrictions we are conducting the Poster day using virtual live event.

Research is the backbone of science and an opportunity for creating new knowledge. The Student Research Day provides a platform for the students and their mentors to present their research work by sharing their ideas and knowledge. The Student Research Day aims to develop and promote curiosity and creativity, flexibility and openness to new ideas and innovations and to expand new avenues of research for future generations.

I take this opportunity to congratulate all the student researchers for their efforts and diligence in preparing their research. Furthermore, I would like to commend the supervisors and mentors for their sincere guidance and contribution to the success of the Student Research Day.

I sincerely hope that the 14th Student Research Day will be successful in providing an ideal platform to nurture the growth of brilliant researchers who will further assist in the development of services and treatments in scientific medicine, both, for the present as well as the future generations.

Furthermore, I express my sincere gratitude to the Dean, Organizing Committee members of the 14th Faculty of Allied Health Sciences Students Research Day, members of the faculty, the support staff and the Kuwait University Administration for making this year's event a success.

We wish all our students all the very best in their future endeavors.

Best Regards,

R. Al-Awadhi

Vice Dean for Research & Postgraduate Studies
Faculty of Allied Health Sciences

Keynote Speaker

Dr. Esra Aleisa

Dr. Esra Aleisa is an associate professor of industrial and management systems engineering at Kuwait University.

She received her master's and PhD in industrial engineering at the State University of New York in 2001 and 2005, respectively. Her research is devoted to the formulation, modelling, evaluation, analysis and optimization of life cycle assessment applications, mainly in the fields of desalination and treatment of municipal waste and water. She served as vice dean for planning and career development at the College of Engineering and Petroleum at Kuwait University. Aleisa has worked on projects in collaboration with the United Nations Commission Committee (UNCC) in regard to post war environmental remediation; and the United Nations Environment Programme (UNEP) and the United Nations Industrial Development Organization (UNIDO) on a project for national resource efficiency and cleaner production in Kuwait. She is a certified project management professional and a member of several professional societies.

Organising Committee

Member	Department
Prof. Suad AlFadhli	*Dean of Faculty of Allied Health Sciences*
Dr. Rana Al-Awadhi	*Vice Dean, Research and Postgraduate Studies*
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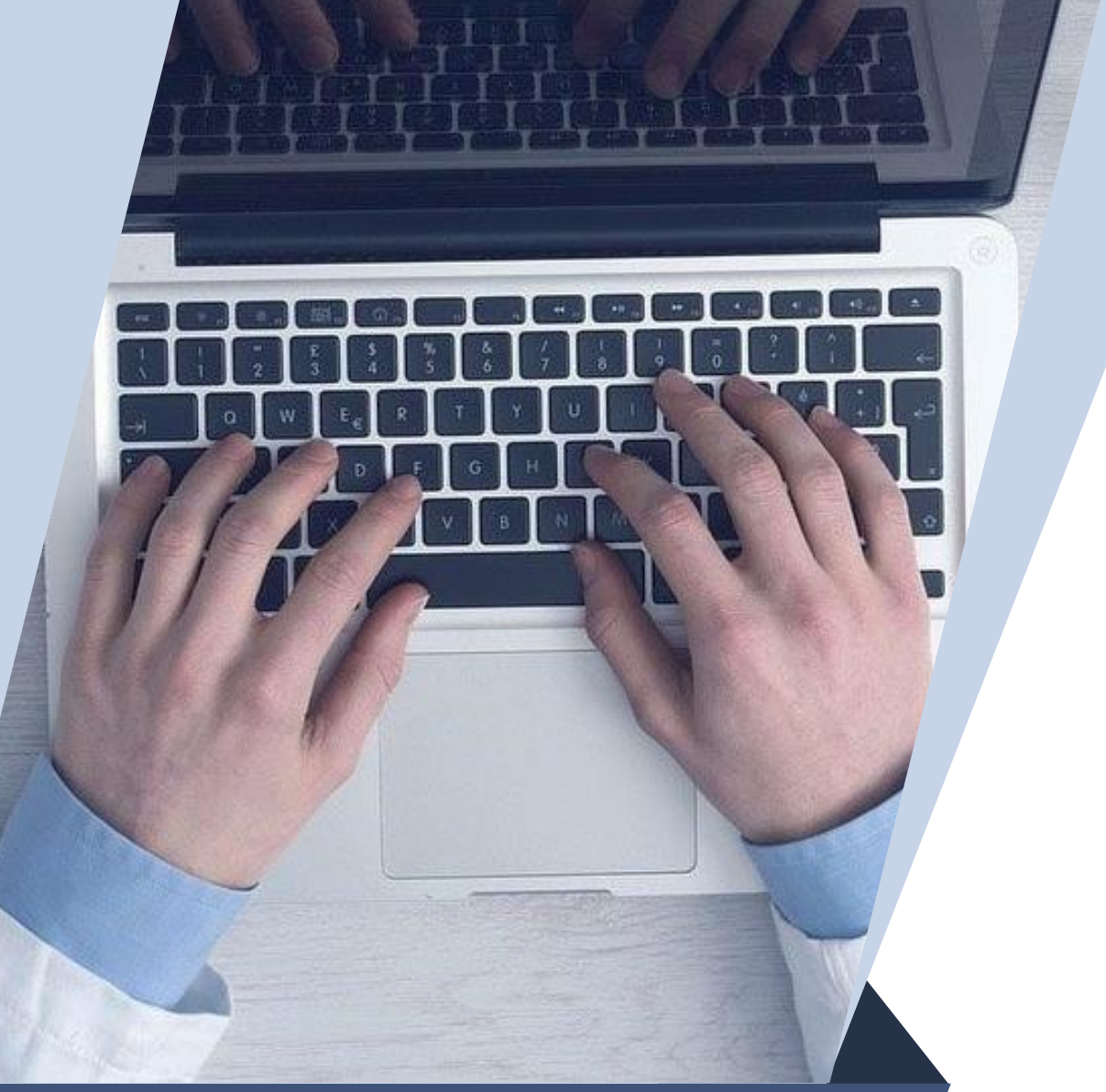
ABSTRACTS

Poster Links Provided



Health Informatics and Information Management (HIIM)

Awarded Posters HIIM

No.	Student Name	Title
1st	Asmaa Hamdan Asmaa Rashed Wedyan Khalaf	Barriers of implementing teleconsultation services during COVID-19
2nd	Alaa Kalandar Hawraa Al-Sharrah Reem Al-Masood	Readiness to use telemonitoring in Kuwait Hospitals
3rd	Bashaier AlAjmi Mona Alotaibi Ohoud Alotaib	Information Technologies and Dissemination of COVID-19 Information among AHS students

HIIM-01

Health Information Seeking Behavior Using Internet and Social Media

Dalal Nasser, Nouf Mohammad, Mousa Al-Ali
Dr. Eiman Al-Jafar, Mr. Hamza Alshawaf
Health Informatics and information Management,
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Background:
The internet is playing a key role in the dissemination on health information across all social platforms. In recent times due to the covid-19 pandemic, people are forced to search for medical knowledge, increasing the demand for health information to be online and shared across various web platforms.
Objective:
This study investigates the use of the internet and social networking sites for health information seeking among Health Science Center Students at Kuwait University from age **18** and above.
Methods:
A pilot-quantitative design was selected to investigate the use of the internet and social media for health information seeking including Covid-19 pandemic period. Data collection instrument used was a self-developed questionnaire including **19** questions: demographic data and health information seeking related questions. Our sample targeted 100 students from the Health Science Center (HSC). Data analysis was performed using Microsoft EXCEL software and descriptive statistics were used to present the results.
Results:
The response rate was **99%** with a majority were students from Allied Health Sciences **(74%).** The most used method for searching health information online was Google search engine **(92%)** followed by **63%** found that social media is a more interactive way to share and find health information. Also, **43%** agreed that information found online is more updated on the internet, while **63%** of participants disagreed that they trust the information that they find online and are aware that not all information is reliable and can't replace consulting a physician.
Conclusions:
This study has been done to view the impact of internet and social media in health information seeking, where the internet and social media are an important thing in our life. By reviewing the studies, we know that COVID-19 pandemic has been increased the online searching for health information with **48%**, and health information was more updated on the internet than social media with **43%**. Furthermore, our results showed we that internet and social media can change people behavior positively.

Key Words:

Health Information Seeking, Internet, Social Media

View Poster

HIIM-02

Information Technologies and Dissemination of COVID-19 Information among AHS students

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Faculty of Allied Health Sciences, Kuwait University

INTRODUCTION:
The global outbreak and rapid spread of the COVID-19 pandemic has led the world's public health and safety systems to face great challenges. Information Technologies are widely spread specially during COVID-19 pandemic. The aim of this pilot study is to investigate the effect of Information Technologies on dissemination of COVID-19 Information among Faculty of Allied Health Sciences' students.

METHODS:
A cross-sectional research design was selected for the purpose of this pilot study using an electronic survey for data collection. The close-ended survey was developed using Microsoft Forms software. The study targeted 100 students randomly who are currently enrolled at the Faculty of Allied Health Sciences at Kuwait University. The survey included 5-likert scale for participants responses. The results were analyzed using Microsoft Excel statistical package including descriptive statistics.

RESULTS:
A total of 97 AHS students completed the survey (response rate: 9.69%). The majority of participants (81%) showed that social media had a significant tool in spreading information, prevention and treatment of COVID-19. In addition, 77% % of the participants agreed that digital communication platforms did support adherence to social-distancing measures, 76%% said Kuwait TV had important role in dissemination, and 56% stated that people commitment to lockdowns was high due to dissemination of information using technology.

CONCLUSION:
Reponses revealed that Faculty of AHS students believed in the significant role of information technology on dissemination of covid-19 information during the crisis. Also, they showed a high support to using telehealth application (Shlonik, Ask). This shows us the extent of the impact of information technologies in our daily life and spreading of the information via internet. The study highlights the necessity for the health information technology in this age-technology specially during the pandemic. Health Information technologies are extremely useful considering the advantages of easy access, determining current location and control visit to hospital and physician clinics.

KEYWORDS:
Information Technologies, role, dissemination, COVID-19.

View Poster

HIIM-03

Barriers of implementing teleconsultation services during COVID-19

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INTRODUCTION:
During COVID-19 pandemic, the use of telehealth had increased such as using teleconsultations, to reduce the infection rate for outpatients' visitors. These teleconsultations, which are an alternative to face-to-face (FTF) counselling, are defined as the interactions between remote healthcare professionals and patients using information and communications technology to provide direct patient care. Latest literature discussed barriers associated with the provision of teleconsultation services. The main objective of this study is to investigate barriers associated with the provision of teleconsultation services during the pandemic in Kuwait hospitals.

METHODS:
A pilot quantitative design study was selected using a modified electronic survey that included five demographic and 10 teleconsultation related questions with 5-likert scale. The sample included healthcare professionals working in governmental and private hospitals in Kuwait. An electronic invitation message was developed and distributed randomly using different Social Media platforms such as WhatsApp, Twitter and Instagram.

RESULTS:
A total of 186 health professionals participated voluntarily in completing the questionnaire representing 162 (87%) government facilities and 24 (13%) private facilities. A total of 107 (15%) of the agreed or strongly agreed that programs were available to facilitate teleconsultation; 5 (2.69%) said was not felt comfortable when communicate with patient by using teleconsultation, whereas 22 (11.83%) was felt comfortable when communicate with patient by using it.

Conclusion:
Rapid adoption of teleconsultations programs ensures access to, and continuity of, patient care while limiting exposure of COVID-19 and that have created unprecedented challenges that face the healthcare professionals to provide services for patients in the outpatient clinics.

Keywords: Barriers, Teleconsultation, Outpatient clinics

View Poster

HIIM-04

Readiness to use telemonitoring in Kuwait Hospitals

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Faculty of Allied Health Sciences, Kuwait University

Introduction: Telemonitoring can be extremely beneficial during COVID-19 pandemic, as in-person visits may present a chance of getting the infection. “Patient monitoring can be applied across almost all health sectors, which underlines its importance and the potential offered by digitalization”. The study aimed to investigate the importance of Telemedicine during COVID-19 pandemic in decreasing the transmission of the virus and how ready healthcare professionals are in accepting to use Telemonitoring systems in Kuwait’s healthcare institutions.

Method: This is a cross-sectional, quantitative pilot study using a self-developed electronic survey among a random sample of healthcare professionals to investigate their perspective about telemonitoring system in Kuwait Hospitals. The questionnaire included 20 questions distributed randomly using social media platforms such as Instagram, Twitter, and WhatsApp. Microsoft Excel statistical software was used for data analysis.

Results: Participants had positive agreement’s rate of 90% about offering telemonitoring services for observing their patients' health conditions. Slightly over 57% did not experience using telemonitoring systems at their workplaces. The majority of participants (81%) supported the idea of telemonitoring and intended to use these systems using and after COVID-19 pandemic

Discussion: Most respondents recognize themselves as early majority and express positive attitude regarding telemonitoring services. The study achieved a high agreement rate of 90% about using telemonitoring systems as offering high-quality services to patients. This is expected since decreasing communication with patients shall protect them from being affected by the virus. Unfortunately, slightly above half of the sample (57.4%) stated that telemonitoring services is not available at their workplaces.

Conclusion: Our study showed that healthcare professionals that completed the questionnaire are ready to use telemonitoring systems in healthcare institutions. Furthermore, our data have showed the importance of these systems in the current corona pandemic as they prevent transmission of the virus among patients and healthcare providers. Providing well-maintained security measures, good infrastructure and appropriate audio and visual equipment are essential recommendations to support the use of telemonitoring systems.

Keywords: Telemonitoring, Remote-monitoring, Telemedicine.

View Poster

HIIM-05

Healthcare Providers' Experience with Virtual Clinics during COVID-19 Pandemic

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Introduction:

Many challenges emerged suddenly to confront the COVID-19 pandemic, which appeared in March 2020. Because of what happened, virtual clinics were approved to follow up patients' case. In virtual clinics physicians are contacting with the patients through phone or video conference. Due to the spread of COVID-19 around the world, health services have been suspended and normal clinics disrupted from what used to be normal practice [3]. The aim of this study is to explore Healthcare Providers' experience with virtual clinics in Kuwait during the acute phase of the Covid-19.

Method:

A quantitative cross-sectional research design was used for the purpose of this study. The target sample was a total of 100 healthcare providers who worked at the healthcare institutions in Kuwait. An electronic self-developed survey was selected as our instrument for data collection for this pilot study. The questionnaire included close-ended demographic and virtual clinics related questions with a 5-Likert scale for the statement's responses. Frequencies and descriptive statistics were created using Microsoft Excel spreadsheet and statistics shown in analytical tables.

Results:

The response rate was 73%. Of the sample, 41% thought using virtual clinics was easy, 43% safe to the patient, 57% protect patient' privacy, security and confidentiality, and 26% thought that diagnosing the patient is easy with virtual clinics. On the other hand, 36% disagreed with the statement "implementing virtual clinics was easy".

Conclusion:

The use of virtual clinic is not as limited or non-existent as it used to be, after the COVID-19 pandemic. The delivery of health care has become almost entirely via virtual clinic. The study results showed that most healthcare providers agreed with virtual clinics in terms of patient safety and comfort with the use of this system. And the use of virtual clinic is almost an easy experience, but they prefer face to face as it was previously in a natural way.

Keywords: Virtual Clinics, Physicians Experience, COVID-19

View Poster

Medical Laboratory Sciences (MLS)

Awarded Posters MLS

No.	Student Name	Title
1st	Anood AlKhaldi	Histologic difference between pancreatic ductal adenocarcinoma and chronic pancreatitis
2nd	Moneerah AlMutairi	The Hematological manifestations of COVID-19
3rd	Zainab Kaweyani	Challenges in Diagnosis and Management of Invasive Candida Infections in the Intensive Care Unit
4th	Fai Al-Yousif	Molecular and Genetic Alterations in Gallbladder Cancer
5th	Abdullaziz Khaled	Effects of Anabolic Androgenic Steroid on Male Fertility

MLS-01

The association between COVID-19 and ABO blood type

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

INTRODUCTION Coronavirus Disease 2019 (COVID-19) has affected millions of people, and much work is being done to identify high-risk groups. On March 11th, 2020, the World Health Organization declared the infection to be a global pandemic. Multiple major conditions and diseases, such as cardiovascular and neoplastic disorders, have been linked to the ABO blood type. The exact mechanisms that link blood group antigens to diseases that involve adhesion molecules are unknown. The purpose of this report is to examine the literature published since the beginning of the pandemic to see if there is a link between ABO blood type and the incidence and severity of COVID-19, as measured by multiple criteria. **MAIN BODY**: A lot of studies have been conducted to find the relationship between ABO blood type and respiratory infections. A recent genome-wide association analysis discovered that the ABO locus is linked to respiratory failure in COVID-19 infections. Generally, most studies reviewed concluded that individuals with blood type O have less suitability to the infection and a lower severity outcome compared to blood type A, which has a higher susceptibility to infection and a more severe outcome. **CONCLUSION:** Out of ten studies mentioned in this review six of them showed a possible association between COVID-19 severity and mortality with ABO blood groups. Most of these studies concluded that blood type O has the lowest susceptibility to COVID-19, and blood type A has the highest susceptibility. Blood types B and AB have a relatively similar susceptibility. Although ABO blood types have been linked to COVID-19 susceptibility and morbidity, a definitive relationship is yet to be established.

KEYWORDS:
COVID-19, ABO blood type, pandemic

View Poster

MLS-02

Preimplantation Genetic Testing Using Fourth Generation Sequencing "Oxford Nanopore"

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This background discusses the current technologies available for embryo biopsies and genetic testing in preimplantation genetic testing (PGT) with the emphasis on the recent developed portable nanopore sequencer and it use in biological filed, and in clinical usage of PGT

PGT is defined as a test carried out to study the DNA from polar bodies or embryos or blastocyst or embryonic DNA (cfDNA) (spent culture) for determining genetic abnormalities. This includes PGT for aneuploidy (PGT-A), PGT for monogenic/single gene defects (PGTM) and PGT for chromosomal structural rearrangements (PGT-SR). These testing includes array-based comparative genomic hybridization (aCGH) and next-generation sequencing (NGS) for PGT-SR and PGT-A on fluorescence in situ hybridization (FISH) and single nucleotide polymorphism (SNP) array for PGT. Recently, a long-read DNA sequencing method called oxford nanopore developed based on measuring the changes in electrical current resulted from passing the DNA molecule through a 1.5 nm wide bioengineered protein channel implanted in a biological membrane and facilitated the detection of genetic diseases in more efficient way. The Oxford portable nanopore MinION is the latest technology that revolutionized the area of genomics by freeing DNA sequencing from being in large laboratories.

The Oxford MinION platform technology is recently showing promise to be considered as genomics point of care testing (POCT) in the field of IVF and PGT as a rapid invaluable option in preimplantation genetic screening method for detecting chromosomal aneuploidies (PGT-A) and structural aberration (PGT-SR) that improves the IVF success rate, increases the chances of having a healthy child and prevents any physical or psychological trauma associated with recurrent miscarriage or termination of the affected pregnancy. MinION platform is a simple powerful, read in real time of DNA and RNA, rapid, affordable, small size and portable approach of DNA or RNA sequencing. It will be soon close to physician, patients, technician, and students. It is enabling the analysis of anything, by anyone, anywhere.

KEYWORDS:

PGT[1], Chromosomal Abnormalities[2], Oxford Nanopore MinION[3]

View Poster

MLS-03

Detection of Giant Cell Arteritis by Temporal Artery Biopsy

Rahaf Alajmi[1] and Anwar Albanaw[2]

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INTRODUCTION: Giant cell arteritis (GCA) is a large vessel vasculitis that usually seen in older adults over the age 50, which often attacks large vessels such as the aorta, and its branches. It could result in blindness, stroke, aortic dissection and associated with a high rate of morbidity and mortality. Headaches, tenderness over the temporal arteries, jaw claudication (pain while chewing), low-grade fever, and systemic upset are the symptoms of this condition. GCA develops quickly and if treatment was delayed, it could result in massive pain, lifelong visual loss, stroke, and sometimes death.

MAIN BODY: When GCA is suspected, a temporal artery biopsy (TAB) should be considered and ensure the initiation of high dose glucocorticoid therapy. Duplex sonography and MRI can be used to find an appropriate biopsy spot prior to palpation. The procedure has low risk of complications such as, hematoma, wound inflammation, and facial paresis or cranial skin necrosis. However, TAB has a limited sensitivity and it gives a negative result in 15 - 40% of patients. Artery segment length that is present for pathology review is crucial for making a pathological examination of GCA. Longer biopsy specimens are proposed to provide further histopathological sampling of temporal artery and even diminish false negative biopsies.

CONCLUSION: Accurate and fast diagnosis are important for successful treatment and recovery in order to control the disease. Also, the right treatment dosage should be carefully prescribed for the patient or it will result in collapse of the condition. Corticosteroid is the best therapy to be used when diagnosed with GCA. Untreated or improper use of treatment could cause a serious complication that is unnecessary and can be avoided by following the treatment for such a period.

KEYWORDS:
GCA, TAB, blindness, corticosteroid

View Poster

MLS-04

Hand sanitizers effect of hand flora and coronavirus

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[1]Medical Laboratory Department/ Allied Health Sciences, Kuwait University, Kuwait.

Due to the global epidemic of the COVID-19 caused by (SARS Cov-2), and diseases caused by bacteria, the use of sanitizers for the purpose of hand hygiene has become common. The types of sanitizers are divided into two: alcohol-based sanitizers and non-alcohol-based sanitizers, the activity of alcohol-containing sterilizers is high against live bacteria that are resistant to multiple drugs. all alcohol-based hand sanitizers have antibacterial effects against both positive and negative bacteria, but so far some sanitizers are still ineffective against non-enveloped viruses. It also shows that non-alcoholic sanitizers target the greasy cover of bacteria or viruses. but it is preferable to wash hands with soap and water over sanitizers because of its ability to eliminate pathogens and dirt. sanitizers have side effects, namely sensitivity, dryness and itching. As for its dangers to children if they swallow it, or to adults if it is used incorrectly, and this may caused them poisoning, shortness of breath and coma. Therefore, alcohol-based hand sanitizers are considered safe unless they are not used correctly. So must know the effective of sanitizers in killing bacteria and viruses, and the disadvantages and advantages of both types of sanitizers. So far alcohol -based sanitizers work to rapidly inactivate and limit the activity of bacteria and viruses, and this helps reduce the spread of the Coronavirus (SARS) and bacteria in hospitals and the community.

KEYWORDS:
(SARS) Sever acute respiratory syndrome coronavirus1.

View Poster

MLS-05

Multi-drug resistance ESBLs-producing *Escherichia coli*

Fatemeh Dashti
Supervisor: Prof. Ali Dashti
MLS

INTRODUCTION

Escherichia coli was first discovered in 1885 by EscherichIt is a gram-negative bacilli and it is considered a normal flora, but it can cause a wide spectrum diseases in all age which can become very serious (Bhatia, Ichhpujani, 1999). Antibiotics are not the first treatment to be used against *E.coli* unless the patient have suffering from a sever disease(Matthew Mueller, 2020)antibiotics was discovered to reduce death from microbial infection, but drug resistance was developed(Paitan,2018). Multidrug resistance ESBL producing *E. coli* had spread worldwide and their right method for their detection must be done (Dashti *et al*,2009) (Bradford, 2001).

MAIN BODY

Extended beta-lactamase (ESBL) is a mutation of B-lactamase with expanded activity against cephalosporins third and fourth generations. (Phillippon et al,1989) ESBL is produced due to constant exposure of the bacteria strains to B-lactamase antibiotics. (Fridkin and Gaynes, 1999)
Since the ESBL resistance production is loaded on plasmid it is easy to spread from one to another and effect the clinical and therapeutic impacts. (Mokaddas, 2008) The misdiagnosing of ESBL leads to worsen the outcomes. (Meyer *et al* ,1993) ESBL infections increased the mortality, extended patient's hospital stays, and increases the costs of treatments. (Emery and Weymouth,1997) The main issue is the unawareness between the clinicians about ESBL and how to overcome it. (Mokaddas, 2008)

CONCLUSION

ESBL producing E. coli became a very complex problem worldwide. ESBL detection test must be included in the routine procedures in the hospitals and choose the write method for detection. Vitek is least demanding technique and another test in needed to confirm and for more accuracy. We could also collect all the tests that are done in the hospitals and laboratories in Kuwait and bring to light which type is more common and compare it to other gulf countries results, which can give us more control over the spread of the antibiotics resistance and ESBL producing microorganism.

KEYWORDS:
ESBL

View Poster

MLS-06

The role of natural killer cells in recurrent miscarriage

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Department of Medical Laboratory Sciences

INTRODUCTION

Miscarriages occur between conception and 24 weeks of pregnancy. Early pregnancy complication recurrent miscarriage, defined as the loss of two or more pregnancies in a succession, affects 1–3% of child-bearing couples. There is no pathological cause in the majority of cases. In order for a successful pregnancy to occur, fetal trophoblast must invade through the maternal decidua and into the maternal spiral arteries, dilating them and generating a low resistance, high flow maternal blood supply to the growing fetus. In the preimplantation endometrium and early pregnancy decidua, natural killer cells are the most abundant leukocytes. NK cells can release a variety of cytokines that play a role in angiogenesis, placental development, and pregnancy establishment. If the trophoblast fails to penetrate, the pregnancy can end in miscarriage. Maternal NK cells are located near fetal trophoblasts and have the ability to interact with them directly. Increased NK cell counts have been linked to reproductive failure. With prednisolone, the amount of preimplantation NK cells was decreased. Despite these promising advancements which suggest a much more research is needed to determine a specific role for uNK cells and to use uNK cells as a test for endometrial dysfunction. Women with idiopathic recurrent miscarriage had different uNK cell populations, according to studies of preimplantation endometrium. This review addresses the activity of NK cells in non-pregnant and pregnant endometrium and the potential implications of changing numbers and function of NK cells in recurrent miscarriages.

METHODS

Two of the studies used a histocytochemistry, and the rest of the studies used flow cytometry.

CONCLUSION

There appears to be a strong link between uterine natural killer cell counts and recurrent miscarriages, which could lead to new treatments or the identification of women at risk of RM.

KEYWORDS:

Recurrent miscarriages, Natural killer cells, uterine natural killer cells, peripheral natural killer cells

View Poster

MLS-07

Association of severe COVID-19 outcome with diabetic patient

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***Shahd hamdan *shahd.hamdan@hsca.ku.edu.kw**

Introduction:
Coronavirus disease of 2019 is a serious invasive disease resulted from a novel beta coronavirus that started in Wuhan China in December 2019 and has spread around the world rapidly in a sudden time. It is diverse from any other pathogens from which is considered as a high risk of mortality for the immunocompromised patient including diabetes. Diabetes has a great impact on covid- 19 patients. It is a chronic disorder marked by sustained hyperglycemia, a condition in which the blood glucose level is too high. It is considered as one of the comorbidities that lead to mortality, admission to ICU, or worst outcomes.

Main body:
The main goal of this study was to compare the association of severe covid-19 outcomes with diabetic patient. A study done on 417 covid-19 patients cases were admitted to Jaber Al- Ahmad Hospital was discriminated specially for covid- 19 patients in Kuwait between 24, February and 24, May in 2020 related to the clinical characteristic of diabetic patients who are infected with covid-19 and patients who have been admitted to the ICU. The groups included a group of type two diabetes (T2DM) patient relating to their medical history and their fasting plasma glucose level of more than or equal to 7.0 mmol/L. The second is a group of non- diabetic patient. Pregnant females and type 1 diabetes mellitus were excluded.

Discussion:
The evaluation were reported as a large number of diabetic patient were admitted to the ICU comparing to non-diabetic patient. A chronic inflammation and hyperglycemia results in reduced T- cell immune function reaction. Death rates percentage is higher by 34.7% in diabetic patient and 3.7% in non diabetic patients.

Conclusion:
Diabetes is associated to severe Covid-19 outcomes. As a result, covid- 19 is an actual worry to diabetic patients which is a huge contributor to increased inflammatory mediators. It is related mostly to uncontrolled diabetes which can be prevented by controlling glucose levels.

View Poster

MLS-08

Colistin and its Rule in the Era of Antibiotic Resistance in Kuwait.

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Introduction

Antibiotic is a chemical substance formed by microorganisms that can inhibit the growth of bacteria and other microorganisms, and even to kill them. Antibiotic resistance is the ability of a microorganism to resist the effects of these antibiotics, and because of these resistances a very old antibiotic, which is called Colistin, has begun to be utilized again clinically. In this review, we intend to discuss the progress of colistin in Kuwait mainly and in some neighboring countries in understanding the alternative colistin mechanisms of action and different strategies used by bacteria to develop resistance against colistin.

Main body

Colistin have many activities against GNB ex, Direct antibacterial colistin activity, Hydroxyl Radical Death Pathway, Vesicle-Vesicle Contact Pathway, Inhibition of Respiratory Enzymes, and Anti-endotoxin colistin activity. Most of these activities need further investigation. Studies showed that mcr-1 has been identified in isolation from humans in an increasing number of three countries of the Arabian Peninsula, India, and Egypt, and it is known that there are many travelers from these countries in Kuwait. When compared to previous experience in Kuwait, resistance to colistin appears to be on the rise. This is a risky development because antibiotics are the last line of defense for patients infected with (MDR) Bacteria that are Gram-negative and in another study was undertaken to determine the susceptibility of *Acinetobacter spp had* showed that 12% of 250 isolation was resistance to colistin which is considered to be high.

Conclusion

E.coli , K. Pneumonia, and A. baumannii are the most prevalent colistin resistance gram negative bacteria in Kuwait. More researches are needed about colistin resistance in Kuwait and more hospitals should be involved in it. In addition, monitoring colistin resistance and other resistance to antimicrobial agent in Kuwait is important. Doctors and scientists should state a new policy to use colistin in Kuwait.

KEYWORDS:
Colistin[1], multi-drug resistance[2], gram negative bacteria[3]

View Poster

MLS-09

Iron Deficiency Anaemia in Middle East

Nouf Alajmi[1] and Nouf Al-Ajmi[2]
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INTRODUCTION

Hemoglobin levels that are fewer than two standard deviations below the mean for the patient's age and gender are considered anemia. Iron is required for hemoglobin to function properly. The most common cause of anemia in the world is iron deficiency, which results in microcytic and hypochromic red cells on the peripheral smear. Age, gender, and socioeconomic status all influence the causes of iron insufficiency. On exertion, the patient frequently complains of nonspecific symptoms such as weariness and dyspnea. The underlying disease must be reversed, as well as iron supplementation. Oral iron supplementation is the most usual type, while intravenous iron may be required in some cases. Patients with iron deficiency anemia have been found to have a longer hospital stay and a higher number of adverse events.

Main body

Iron insufficiency is the most frequent dietary deficiency worldwide. Iron deficiency anemia affects up to 27% of the world's population, according to the World Health Organization. IDA is the most common cause of anemia, particularly among women, according to studies conducted in the Middle East, including Saudi Arabia.

Almost a quarter of the world's population suffers from anemia. The most common cause of anemia is iron deficiency, which accounts for half of all cases. Iron deficiency is more common in developing countries than in the United States, where 1% of males under the age of 50 suffer from iron deficiency anemia.

Conclusion

This situation highlights the importance of physicians reaching out not only to the most vulnerable people, but also to entire populations, particularly those going through a nutritional change. Improvements in the Middle East region will be seen in the future if a variety of techniques to encourage good dietary patterns and increase micronutrient sufficiency via food fortification and dietary supplements are used.

KEYWORDS:
Iron deficiency , anaemia , blood disorder.

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MLS-10

Histological methods to identify pancreatic ductal adenocarcinoma

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Introduction

PDAC is the most prevalent type of pancreatic cancer with poor outcomes. PDAC was identified using different histological methods, including biopsy with varying approaches including FNA biopsy, brush biopsy, and laparoscopy biopsy. PDAC also identified Macroscopically and Microscopely by examination of the abnormal changes in the specimen tissue and cells. H&E staining method is also used to identify any morphological changes or abnormalities in PDAC tissue specimens. Histopathological grading is used to determine how far and the rate of cancer spreading. Three stages were conducted based on the grading criteria that were implanted by the WHO. IHC technique is also used for identifying PDAC where it detects the presence or absence of antigens in a particular cell tissue by antigen-antibody reaction. HAPSS method can be used for detecting cancerous and non-cancerous tissues in human pancreatic by analysing the spectral characteristic features and classify the target tissues into dark and bright pixels.

Maine body

PDAC is a very aggressive disease with an absence of early diagnosis methods. The signs and symptoms cannot be used as a definite diagnosing criterion for PDAC, thus histological methods including biopsy, macroscopic and microscopic identification, H&E staining method and IHC are performed as well as the HAPSS method to have a more defined diagnosis of PDAC.

Conclusion

PDAC was identified using different histological methods including biopsy methods, however, cannot be used as a definitive diagnostic method. H&E showed as a helpful method to identify the morphological alteration in the PDAC tissues and cells. IHC staining method can be used as a method for identifying and diagnosing PDAC based on antigen-antibody reaction. HAPSS is a suitable method for the detection of tumors in pathological slides of the pancreas, the validity, and efficiency of the method requires further studies.

KEYWORDS:
PDAC[1], H&E[2], IHC[3], HAPSS[4]

View Poster

MLS-11

Antibiotic Resistance As a Global Threat With the Focus on MRSA

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Abstract:

Background. Antibiotics are considered the most important antimicrobial agents for fighting and preventing bacterial infections. However, the increased consumption of these medications around the globe resulted in an elevated rate of resistant strains of bacteria, which in turn created one of the most urgent public health dilemmas. This problem demands an immediate response as it has the potential to affect people at any stage in life, as well as healthcare and other industries. Objective. this review article aims to increase the overall awareness regarding the impact of antibiotic resistance on the world and the various accompanying side effects, with particular emphasis on methicillin-resistance staphylococcus aureus, which is caused by staph infection that is difficult to treat due to it resistance to several antibiotics. Methicillin-resistance staphylococcus aureus can spread in different communities including hospitals, and schools. The article will also provide an overview on individuals at utmost risk, how it is diagnosed, usual routine treatment, and different methods to adhere to to prevent its spread. Conclusion. antibiotic resistance is increasing at a dangerous level all around the world. In order to deal with the problem our priority must lie on slowing the development of the resistance rather than to stop it completely. This can be accomplished by implementing strict regulations regarding antibiotics prescriptions, preventing, or reducing the spread of different infections via practicing better sanitation measures, and vaccination.

View Poster

MLS-12

TYPES OF COVID-19 VACCINES.

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INTRODUCTION

COVID-19 is an infectious disease caused by a newly discovered coronavirus. Most people infected will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people, and underlying medical problems are more likely to develop serious illness. Protect yourself and others from infection by washing your hands or using an alcohol-based rub frequently and not touching your face. The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person cough.

Main body

Research for COVID-19 vaccine, advance clinical candidates all over the world support for anticipating the large-scale manufacture of vaccine, and support for rapid distribution to reduces the death rate. Clinical trial target the protein variants antigen, multiple antigen target N protein, inactivated vaccine, Attenuated vaccine and Peptide vaccines can generate. Mixing of Vaccine may increase side effect for people such as fatigue and headaches, short-lived side effects can be experienced by people. Most of the vaccines that are being developed need at least two doses. The cost of vaccine Pfizer has higher prices for COVID-19 vaccine. Vaccine manufacture gets approval from two or three clinical trials. Kuwait approves emergency use Pfizer-BioNTech for corona virus. A minimum percentage of vaccine side effect received only for few days and there are no long-term side effects. Pfizer vaccine recommends only person above the age of sixteen.

CONCLUSION

Vaccine efficacy rate and detailed monitoring of vaccination over the world. Several vaccines arise all over the world, daily vaccination shot given to people, it helps to the equitable access of safe and effective vaccine for millions of people who need a vaccine. COVID-19 vaccine encourages immune responses, it protects against virus, possible development over different variants and many people are vaccinated. A vaccine that provides a high level of efficacy, not provide 100 % effective, WHO approved vaccine are possible to effective. A vaccine is developed by inactivated virus, protein-based vaccines, viral vector and mRNA vaccine, most of the vaccine is based on Viral vector and mRNA based, its result of developing immune responses.

KEYWORDS:
COVID: Corona Virus Dease
EUL: Emergency use listing
WHO: World Health Organization

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MLS-13

Importance of histogram in diagnosing dimorphic blood picture after an therapy

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Abstract:

Introduction:

A histogram is a graph created by new red cell analyzers that gives an overview about the distribution of red cells according to their sizes. The analyzers used special methods related to red cell size and number to create a histogram graph. Histogram displays different curve graphs in different cases such as in dimorphic blood picture the histogram appears as two peaks.

Main body:

Iron is an important element in erythropoiesis, so the deficiency of this element will lead to great problem such as iron deficiency anemia. Iron deficiency anemia is diagnosed by multiple diagnostic tests performed in hematology and also biochemistry laboratory. The blood smear of IDA patients present hypochromic microcytic cells which is something to be demonstrated on histogram.

Conclusion:

Technicians should be trained to read red cell histogram which is a useful diagnostic and monitoring tool for IDA diagnosis and treatment, but can't stand alone without BF examination and biochemical tests.

View Poster

MLS-14

Common infections in COVID-19 ICU patients

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A high mortality rate was detected in ICU patients who were diagnosed with the COVID-19 virus. Since in previous viral pandemic, such as the influenza pandemic in 2009, the mortality rate was very high due to secondary or nosocomial infections. So, in this study, we aimed to explain changes of having a secondary infection in patients who were diagnosed with COVID-19, especially patients who were admitted to ICU due to suffering from COVID-19 infection. Studies were collected from different hospitals to compare between each hospital's outcomes. The elderly patients and patients who had a chronic underlying disease were the most group who were admitted to ICU because of COVID-19 infection. The patients who were admitted to ICU had a high rate of secondary infections than the other group of patients who did not admit to ICU. In addition, some patients had more than one secondary infection or nosocomial infection at the same time. The mortality rate of patients admitted to ICU due to COVID-19 infection was much higher than COVID-19 patients who did not admit to ICU. In conclusion, ICU patients with COVID-19 infections are at high risk of having a secondary infection or nosocomial infection or even more than one infection, resulting in a decrease rate of patient’s survival and increased rate of mortality in patients who were admitted to ICU because of COVID-19 infection.

KEYWORDS:

COVID-19, ICU, secondary infection.

View Poster

MLS-15

The Action of Green Tea as Anti-obesity on Adipose Tissue

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Introduction

Green tea is a well-known beverage. It have many beneficial effects on the body and can work as anti-obesity, anti-cancer, and anti-diabetic. Several studies were done in order to improve the anti-obesity effects of green tea. Its effect, which have been supported by using animal studies, as well as, humans clinical trials, was improved as anti-obesity in many studies. Green tea is packed with powerful antioxidants and beneficial nutrients that can increase the ability of reducing body weight. Catechins is the key product that is present in a high quantity in green tea, it can increase fat burning and aid in boosting metabolism, therefore, promoting weight loss.

Main Body

Several studies were done in order to improve that Green Tea has an anti-obesity effect on body and what is the action it makes on adipose tissue. The experiments were done on rodents, that were fed with high-fat diet with the addition of green tea extract. Some of the studies used green tea in hot water and some brewed it in cold water. The studies used to compare the amount of fat loss or gained in a specific period of time, then examine the rodent's samples, like the liver, under the microscope before and after the experiment. Also, a clinical trial was done on humans and results showed that people who consumed green tea has lost on average of 0.2 to 3.5 kg. Overall results showed a satisfactory outcome and improved the ability of green tea beverage in reducing adipose tissue size or number through different studies.

Conclusion

it can be concluded that green tea has a great role in lowering body weight by either reducing the size or reducing the number of adipose tissues. Some studies improved that all the adipocytes can be removed from the tissues. It has been improved also, that drinking green tea brewed in cold water can be more effective for reducing body weight, improving a healthy body, and get all the benefits from its ingredients, for example, the catechins. So, green tea can be the perfect choice for obese people to lower their weight and maintain a healthy body, therefore, a healthy lifestyle.

Keywords:
Green tea1, Adipose tissue2, Anti-obesity3

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MLS-16

Effects of Anabolic Androgenic Steroid on Male Fertility

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Introduction: Anabolic androgenic steroids (AAS) are testosterone compounds that are used by athletes, body builders, weightlifters and recreational users to enhance athletic performance or appearance. In men, testosterone can be taken in a variety of ways. They can be administered as testosterone only or in combination with other hormones and non-hormone molecules, are all used. The most common anabolic androgen steroids that were taken by athletic performance or body builders were testosterone esters, nandrolone, stanazolol, methandrostenolone and trenbolone.

Main body: Misuse AAS can have negative effect on fertility. In studies performed during 2011, 2014, 2015 and 2017, they discovered that AAS misuse decreased follicular stimulating hormone (FSH), Luteinizing hormone (LH), and endogenous testosterone levels. It is being reported that, the length of suppression for LH, FSH, and testosterone levels is dependent on the kind of ASS, duration of usage, dosage, and age. However, AAS users could recover hypogonadism progressively if ASS is stopped with normal Hypothalamus-pituitary-gonadotropin (HPG) function. Infertility caused by AAS users has been found to be characterized by azoospermia or oligospermia, which is marked by sperm motility and morphology. This is because AAS use impairs spermatogenesis. However, no substantial improvement in spermatogenesis was observed 8–30 weeks following AAS withdrawal in a meta-analysis study. Furthermore, spermatogenesis recovery time appears to be highly variable, both with and without pharmaceutical therapies, making it difficult to predict for an individual patient. The majority of cases of AAS-induced oligospermia or azoospermia will recover sponatousley within 4–12 months after the AAS was stopped. Other side effect of AASs are testicular atrophy, erectile dysfunction, lack of libido, gynecomastia and physiological patterns such as depression, aggressiveness and mood swing due to AAS misuse.

Conclusions: improvement of athletic performance or appearance by using anabolic androgenic steroid synthetic drugs despite its significant influences. Because of their harmful side effect, it is advisable to avoid taking any of these AASs to avoid damage to body organs, particularly the reproductive system.

Key words:

Anabolic androgenic steroid, gonadotropins hormone, spermatogenesis.

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MLS-17

COVID-19 and Vitamin D

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Introduction:
Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) causes a disease called coronavirus disease in humans 2019 (COVID-19). Vitamin D is an immunomodulator steroid hormone that is effective against a variety of upper respiratory infections. During viral infections, Dihydroxy vitamin D 1,25(OH)2D3, in particular, suppresses adaptive immune responses in respiratory epithelial cells.

Main body:
Low rates of pneumonia cases and fatality were found in the region with the highest solar UVB irradiance and lowest, while the highest rates, which had the lowest UVB irradiance and highest latitude since were reported since 1918–1919.

It worth noting that the new developments in the measurement of VitD metabolites have greatly advanced the scientist understanding of VitD's role in human health in the last decade. Vitamin D sufficiency is defined as a serum 25-hydroxyvitamin D (25(OH)D) level > 75 nmol/L, while levels of VitD insufficiency is 50–75 nmol/L, whereas deficiency levels are level < 50 nmol/L. Numerous reports indicated that extra-renal synthesis of 1,25(OH)2D3 is critical for the immunomodulatory function of VitD in local tissues. It is increasingly believed that 1,25(OH)2D3 is in charge of many of the immune effects of VitD in respiratory disease. It is being reported that VitD insufficiency was found to be related to a greater risk of Invasive Mechanical Ventilation (IMV/D) and death. In COVID-19 patients, pneumocytes are the primary target of SARS-CoV-2, and their impairment decreases the surfactant level and thus increases the liability of acute respiratory distress syndrome (ARDS). Many reports indicated that VitD helps in the reduction of apoptosis of pneumocytes and stimulates surfactant synthesis in these cells to prevent severe lung injuries such as ARDS.

Conclusion:
Vitamin D and extra-renal metabolism; production of 1,25(OH)2D3 has a major role in the prevention and treatment of SARS-COVID-19 infection.

Key words:
COVID-19, 1,25(OH)2D3, Immune system

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MLS-18

The anti cancer effect of Honeybee venom and melittin against breast cancer cells

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Abstract:

Bee products made from honey, pollen, royal jelly, beewax, propolis and in particular, bee venom, and the Apitherapy is the therapeutic and medical application of them. The aim of this work is to check bee venom and its therapeutic values. It uses the application of bee venom to treat various diseases and has been used in traditional medicine since ancient times. Bee venom is produced by the venom gland in the abdominal cavity and contains several biologically active peptides, including melittin (an important component of BV), apamin, adolapin, mast cell degranulating peptide and enzymes (phospholipase A2 and hyaluronidase), as well as non-peptidic components such as histamine, and dopamine Norepinephrine. Be venom has therapeutic values against a wide variety of diseases such as arthritis, diseases of the nervous system, abnormalities of the heart and blood systems, and diseases of the skin. In addition, bee venom is widely used in the treatment of some immune system diseases and, more recently, in the treatment of various cancer cells including kidney, lung, liver, prostate, bladder cancer cells, and breast cancer, as well as leukemia cells, which can be targets of toxic ones peptides such as melittin and phospholipase A2. Research should be expanded to identify its specific component and targeted actions.

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MLS-19

mRNA vaccines for COVID-19

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Introduction:
The COVID-19 were discovered in China, in December.The majority of the patients have moderate symptoms such as fever, cough, dyspnea, myalgia, and fatigue. Patients with severe instances, suffer ARDS , serious cardiac and renal consequences. which lead to death.

Main body:

Vaccines:

Vaccines are biological preparations that boost the immune system. There are 2 ways to achieve that , it is either by preventing the disease or by treating it.

mRNA vaccines mechanism:
The mRNA portion of the vaccine travels to the cell via lipid nano-particles after being administered into the body. When the lipid carrier reaches the cell's cytoplasm, it degrades, revealing the mRNA and training the immune system. The precise command is to recognize and establish an immune response to the S protein by detecting it. The ribosomes initiate the protein production cascade. An mRNA gradually disintegrates after the message has been read.

Conclusion:

mRNA vaccine is a relatively new technology. However, given the urgency of the COVID-19 situation. The mRNA was utilized and they have a very good efficacy profile so far. These vaccines have a promising future.

Key words:
mRNA vaccines
COVID-19 vaccines
COVID-19

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MLS-20

Male infertility due to Y chromosome microdeletion

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Introduction:
Male infertility is a complex multifactorial condition that presents with heterogeneous phenotypes affecting approximately 7% of the male population. It has many causes ranging from genetic mutation to physical problems to lifestyle choices to medical illnesses or medications. Genetic abnormalities causing male infertility can be classified into two major groups chromosomal abnormalities and monogenic mutations. The major genetic causes of male infertility are due to chromosome abnormalities followed by Y chromosome microdeletion.

Y chromosome and male infertility:
The human Y-chromosome contains genetic material responsible for normal testis development and spermatogenesis. Y chromosome microdeletion occur in approximately 10 to 15% of azoospermic patients and 5 to 10% of severe oligospermic patients. Most of chromosome microdeletion occur in the azoospermia factor (AZF) region in Yq11 which is subdivided into AZFa, AZFb, AZFc microdeletion. One or more loci of the AZF region or portions of variable lengths may be deleted in idiopathic infertile men with the AZFc is the mostly deleted one. Deletions of the AZFa region are the least common class of AZF. Complete AZFb deletions are associated with azoospermia manifested by the arrest of meiosis and maturation at the spermatocyte and spermatic stages of male germ-cell differentiation. Patient baring AZFc deletions are show variable grades of testicular failure, ranging from severe hypospermatogenesis, to spermatogenesis arrest, to Sertoli cell-only syndrome, Y-microdeletions are the second most identified genetic cause of male infertility after Klinefelter syndrome.

Conclusion:
Molecular diagnosis and Y chromosome screening of these microdeletions is now a standard and available in all clinical investigation in the workup of severe male infertility Although most AZF microdeletions are of de novo origin, however, AZF microdeletions can be vertically transmitted to offspring by both natural pregnancy and ART treatment. Genetic testing for AZF deletions has become part of the routine diagnostic procedure of men with azoospermia or severe oligozoospermia. Thus. screening couples with infertile male for specific AZF deletions and other chromosomal abnormalities in infertile males is highly recommended.

KEYWORDS:
Male, Infertility, Y chromosome, Deletion.

View Poster

MLS-21

Acute kidney injury in COVID-19

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Introduction

SARS-CoV-2 infection can lead to acute kidney injury in critically ill patients. as the tubular epithelial cells and podocyte can be infected by the virus, also, the glomerular filtration is affected by a high level of angiotensin II in SARS-CoV-2 infection, which can lead to increased protein excretion in urine that indicates tubular injury.

Main Body

SARS-CoV-2 can infect renal cells directly through the ACE2 receptor, which is expressed in the renal cells. Additionally, there are risk factors including, age, hypertension, diabetes mellitus, and severity of illness that can increase the risk of developing acute kidney injury. The damage of tissue that is caused by virus infection influence the immune response leads to produce proinflammatory cytokines and the tissue injury will be more damaged when multiple cytokines are secreted. Also, the complement system activation, inflammatory response and coagulation process, and cell death can lead to severe tissue damage, multiple organ failure, and systemic inflammation. the kidneys and lungs have similarities as one disease in one organ can affect the other organ, that is caused by some reasons, such as hypercapnia, systemic hypoxia, acute lung injury result in systemic inflammatory response syndrome (SIRS), and mechanical ventilation. furthermore, septic shock is one of the common causes of death in SARS-CoV-2 patients combined with acute kidney injury, as it is the first cause of multiorgan dysfunction. And for the treatment, there are some strategies to minimize the worsen outcomes in this condition, such as continuous renal replacement therapy, Tocilizumab, and anti-C5 antibody.

Conclusion

In conclusion, there are combined factors that can lead to AKI in COVID-19 patients not only one factor, and some treatment may also have an adverse effect on the kidneys. It needs more attention to deal with this condition and it is important to understand the pathophysiology of acute kidney injury associated with COVID-19 to avoid the worsen outcomes in COVID-19 patients and to save their life.

Keywords

Acute kidney injury (AKI), COVID-19

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MLS-22

Currently used Covid-19 Vaccines in Kuwait

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Introduction
SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2) is a highly pathogenic emerging virus that was responsible for the recent global pandemic known as coronavirus disease (COVID-19). COVID-19 was initially reported in early December of 2019. SARS-CoV-2 virus spreads by inhalation of respiratory aerosols, direct human touch, and fomites. COVID-19 diagnoses were determined based on a positive result of a real-time reverse transcriptase-polymerase chain reaction (RT-PCR) assay performed on nasal or pharyngeal swabs. Currently, vaccination is the only way to end this crisis. Therefore, it is necessary to provide accurate information about COVID-19 vaccines to the people. In this regard, this review is aimed at providing evidence-based information about the vaccines that are currently used in the State of Kuwait.

Main body
Vaccines for SARS-CoV-2 are being investigated on a variety of platforms, including viral vectored vaccines, protein subunit vaccines, genetic vaccines, live attenuated viruses, and inactivated vaccines. As for Pfizer and Oxford-AstraZeneca vaccines are currently being used in Kuwait. Oxford-AstraZeneca vaccine (AZD1222) is a nonreplicating chimpanzee viral vector vaccine that was previously known as ChAdOx. However, mRNA-based vaccine, which encodes the SARS-CoV-2 RBD domain, is being developed by BioNTech, in collaboration with Pfizer. This rapid advancement must be accompanied by assurances that any vaccine developed would be safe to use in humans and at any step of the vaccine development process, protection should be investigated.

Conclusion
The wide-ranging threat presented by SARS-CoV-2 to humans has posed hurdles in the development of safe and effective antiviral medications and vaccines. Based on several platforms, a large number of COVID-19 vaccine candidates have already been identified. Oxford-AstraZeneca shows effectiveness up to 90% while Pfizer shows 96% effectiveness. However, the focus now shifts to developing a vaccine in a specific dose form that is both stable and practical for large-scale manufacture.

KEYWORDS:

COVID-19, acute respiratory distress syndrome, Pfizer vaccine, Oxford-AstraZeneca vaccine

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MLS-23

Factor causing insulin resistance of type 2 diabetes

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Introduction: Insulin is a key regulator of glucose homeostasis and also plays a role in anabolic processes including tissue growth and development. Insulin binds to its receptor in skeletal muscle, liver, and adipose tissue, among other tissues. Insulin resistance refers to insulin's decreased capacity to promote glucose utilization. As a compensatory mechanism, pancreatic cells increase insulin output and secretion (hyperinsulinemia), whereas glucose tolerance remains usual. In order to compensate for deficiencies in peripheral insulin action, the pancreas increases insulin secretion into the bloodstream in the early stages of insulin resistance. The β-cells hypertrophy in response to the increased demand for insulin production. Basal compensation is necessary to keep blood glucose levels in the normal range while fasting**.**

Main body: Obesity has been linked to an increase in the risk of insulin resistance and type 2 diabetes. Obesity is the most important consideration in the development of metabolic disorders. Obesity and type 2 diabetes are linked to increased non-esterase fatty acid NEFA levels, which are linked to insulin resistance in both. Humans develop insulin resistance within hours of an immediate rise in plasma NEFA amounts. Intra-abdominal fat is much more lipolytic than subcutaneous fat, and it is therefore more resistant to insulin's anti-lipolytic effect. There are powerful lifestyle determinants for the development of insulin resistance as well as the metabolic syndrome, it is becoming abundantly apparent that genetic factors play a role in an individual's likelihood of developing insulin resistance and elements of the metabolic syndrome. It being reported that P12A polymorphism in PPARg, which is linked to an elevated risk of diabetes, is a gene mutation most often affect insulin sensitivity. Genetic factor also plays a role in disruption of insulin's signaling transduction tissue aggregation of bioactive lipid substances in peripheral tissues activates proinflammatory signaling mechanisms and a novel protein kinase C (PKC), all of which have been shown to disrupt insulin signal transduction by changing essential phosphorylation processes and protein-protein interactions.

Conclusion: Major factor causing IR is a genetic factor alone or along with other factors such as environment factor.

Key words:
Type 2 diabetes, insulin resistance, genetic factor.

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MLS-24

The Role of Cytoskeletal Filaments in Breast Cancer Progression and Diagnosis

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INTRODUCTION

Cancer is a abnormal growth of cells that have the characteristics migratory metastasis and invasiveness of other tissues resulting the destruction of the whole organism. Cellular cytoskeletal network can be altered or disrupted during cancer, which may aid in increasing tumor cell proliferation, growth, and invasion. The role of cytoskeleton in breast cancer was of interest for many investigations during the last decade. Therefore, this literature review we aim to focus on the role of different cytoskeletal components and their relation on to the aggressiveness of breast cancer and possible correlation with the current breast cancer phenotypes.

MAIN BODY

Actin continuously promotes the epithelial mesenchymal transformation (EMT) of tumor cells by continuous actin rearrangement. For example, the degradation of the intercellular adhesion molecule E-cadherin, results in the disruption of intercellular junctions, thus promoting cellular migration associated with EMT reorganization of the actin cytoskeleton and Rho-A GTPase activation. Cytokeratin and vimentin expression in breast cancer showed that the loss of cytokeratin was found to be more common in patients with infiltrating ductal carcinoma and lower overall survival, stage IV disease, and PR negativity, while presence of vimentin was associated with lower relapse-free survival. ATIP3 is a strong microtubule-stabilizing protein, and its absence or lower levels was seen in metastatic tumors correlated with lower patient survival.

CONCLUSION

Breast cancer is a multifactorial, heterogeneous disorder that necessitates professional expertise and a multidisciplinary approach for diagnosis and treatment. Metastasis is a dynamic mechanism that necessitates drastic cytoskeleton reorganization. There are numerous proteins that interact with the actin and microtubule, either directly or indirectly, have been shown to have a profound effect on tumor cell migratory and metastatic phenotype. The reported importance of intermediate filaments was seen in cytokeratin loss and vimentin gain are markers of biologically aggressive breast carcinoma. Therefore, it is crucial to further investigate the role of cytoskeletal filaments and include them in the classification of the tumour behaviour.

KEYWORDS:
Actin, Microtubule, Microfilament, Breast cancer

View Poster

MLS-25

Molecular and Genetic Alterations in Gallbladder Cancer

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Introduction

Gallbladder cancer (GBC) is a disease that forms malignant cells in the tissues of the gallbladder from the inner to the outer layer. In the early stages, there are no indications and symptoms of GBC, symptoms are similar to many other diseases. GBC in most western countries is a sporadic biliary tract disease but is very prevalent in some other areas of the globe. Mortality rates globally rise in the Chilean Mapuche and decreased in some nations, including the USA, Canada, Australia, and parts of Europe. On the other hand, different risk factors can lead to GBC, which includes age, sex disparities, gallstones, obesity. and genetic factors.

Main body

Molecular and genetic defects and alteration that leads to GBC were identified by several studies focusing on the detection of GBC genetic modifications, e.g. oncogenes and tumor suppressor genes (TSGs). Serious genetic modifications which lead to the development of GBC remain unknown some major genetic changes identified in GBC were described. In GBC databases, The tp53, smad4, and arid1a genes were the most mutated genes. Mutations in genes atm, tert, kmt2d showed in GBC in Memorial Sloan Kettering Cancer Center (MSK) repository and znf521 from the gallbladder carcinoma in Shanghai. In addition, a report from Chile emphasized the role of microsatellite instability (MSI) in GBC.

Conclusion

GBC is a highly lethal disease that has a large regional impact depending on different risk groups. Studies have shown the mutant and altered genes that can be changed in GBC, but the exact function of these modifications in GBC is lacking information. To suggest more accurate diagnoses and new molecular marks of predisposition and prognosis, more information must be developed about the most significant changes and genetic changes in the tumor. Finally, a total genetic profile exploration may provide an overview of the progression of disease that opens new opportunities for the development of biomarkers and targeted treatment in GBCs.

Keywords:

Gallbladder cancer, Oncogenes, Tumor suppresser gene

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MLS-26

Vitamin D and COVID-19

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Introduction

Vitamin D is involved in the regulation of various cellular functions. Very few foods have naturally occurring vitamin D. One of the most important natural sources of vitamin D is dermal synthesis. It has been shown that Vitamin D and its metabolites have a significant role in immunity and several studies suggest that vitamin D has a beneficial role in the management of viral infections. Furthermore, in vivo vitamin D deficiency leads to mild oxidative stress and vitamin D treatment reverses the adverse effects of oxidative stress. Considering the above-mentioned role of vitamin D, it has been suggested that supplementation of Vitamin D is highly beneficial in COVID -19 patients, especially in those with vitamin D deficiency.

Main Body

Vitamin D deficiency is associated with increased susceptibility to various infectious diseases. On the other hand, Vitamin D supplementation is associated with a reduction in acute respiratory tract infections. Studies on the molecular mechanisms of vitamin D in immunity shows that vitamin D receptors are expressed in many immunological cells such as B cells, T cells, macrophages and dendritic cells. Vitamin D can modulate innate and adaptive immune system function by activating their vitamin D receptors. Furthermore, it is shown that vitamin D deficiency can cause over-activation of the pulmonary renin-angiotensin system (RAS) leading to the respiratory syndrome. RAS is regulated in part at least by angiotensin-converting enzyme 2 (ACE2), which also acts as a primary receptor for SARS-CoV-2 entry into the cells. Also, vitamin D reduces cytokines storm or cytokines release syndrome which causes and increasing morbidity mortality in respiratory infections.

Conclusion

The data presented in this review offers credible information on how Vitamin D plays a vital role in fighting SARS-CoV-2. In conclusion, in the context of the COVID 19 pandemic, supplementation of vitamin D is highly beneficial in the treatment of SARS-CoV-2.

Keywords: COVID-19, Vitamin D, immunity, Oxidative stress

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MLS-27

Accuracy in screening of neonatal jaundice (hyperbilirubinemia)

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INTRODUCTION

Jaundice is a common condition occurs in newborn during the first week of life owing, usually 2 to 4 days after birth, until 1 to 2 weeks. This characterized by hyperbilirubinemia, a condition caused by bilirubin disposition in the skin and mucous membrane. About 60% of mature and 80% of premature new-borns develop jaundice. Jaundice has various forms including pre-hepatic jaundice (due to hemolysis of red blood cells), hepatic jaundice (due to defect in metabolic pathway in the liver) and post hepatic jaundice (due to obstruction of extra hepatobiliary system). High plasma bilirubin can cause different conditions including gastrointestinal bleeding, weight loss, edema, anemia, and diarrhea. Severe hyperbilirubinemia could cause brain damage owing to its neurotoxicity, a state commonly known as kernicterus.

Main body

periodic bilirubin monitoring is essential to identify infants at risk and to initiate treatment. The goal of this review is to identify the link between recalibration of a reflectance spectrophotometry blood bilirubin assay, total serum bilirubin levels, and phototherapy treatment in neonates.

RESULTS

Results show how minor modifications in measurement methods can result in significant changes in diagnosis and treatment. The information reveals two major flaws. First, guidelines should clarify the analytical assays utilized to set treatment thresholds where there is high inter-instrument variability. Additionally, present laboratory accuracy standards are insufficient to uncover biases with clinical implications. The positive bias imposed by the Vitros BuBc assay was eventually established by comparing newborn bilirubin proficiency testing peer group means with those of other instrument/assays, however the problem went undetected for at least two years until the recalibration was implemented.

CONCLUSION

The review recalibration highlights the need for more laboratory knowledge to be integrated into clinical recommendations and for worldwide attempts to standardize laboratory measures to be supported. After moderate recalibration-induced reductions in mean total serum bilirubin concentrations, the percentage of neonates with clinically severe hyperbilirubinemia was dramatically reduced, emphasizing the need for greater laboratory knowledge to be integrated into clinical guidelines.

KEYWORDS:

Jaundice1, hyperbilirubinemia2, recalibration3.

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MLS-28

The Hematological Manifestation of COVID-19

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Abstract

Introduction

According to the World Health Organization, the current pandemic with pneumonia outbreak began in Wuhan City, China. This pandemic was caused by a novel coronavirus known as COVID-19. This virus is a multi-organ illness with wide range of symptoms. Every day from all around the world, new data, statistics, and discoveries are reported about the pandemic clinical practice and laboratory testing. Therefore, the function of laboratories, in specific, hematology has become more extensively acknowledged. The aim of this literature review is to study the hematological manifestations in COVID-19 patients.

Main Body

There are several COVID-19 distinctive hematological abnormalities. Some of which have prognostic consequences. The most important hematology tests used to identify COVID-19 are: Complete blood count (CBC) including values of white blood count, neutrophil, lymphocyte and platelet count (PLT), mean platelet volume and certain ratios of these values. These can be used as inflammatory markers. Abnormalities in COVID-19 include prolonged in Activated partial thromboplastin time (APTT) and Prothrombin time (PT), elevated Fibrinogen, elevated D-dimer levels lymphocytopenia, and thrombocytopenia.

Conclusion

Laboratory tests play key role in diagnosis of coronavirus, in particular immunological test such as Real-time Polymerase Chain Reaction (RT-PCR). Alongside, other hematological tests are all essential indicators in the care of COVID-19 patients, mainly those who are seriously and critically unwell. These hematological tests include low T-cell subsets, lymphocyte count, Red cell volume Distribution Width (RDW), neutropenia, eosinopenia, high Neutrophil Lymphocyte Ratio (NLR), and prolonged Prothrombin time (PT). The best hematological index is the combination of increased NLR and RDW. All of these parameters were worse in severe cases. In conclusion, those laboratory tests aid physicians in predicting the severity of COVID-19 patients and serve as valuable indicators in preventing and controlling the pandemic.

Keywords:
Hematology, COVID-19, blood cells

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MLS-29

Histologic difference between pancreatic ductal adenocarcinoma and chronic pancreatitis.

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INTRODUCTION

The pancreas is a vital organ in the body. It is located in the mid-upper part of the human abdomen. The pancreas is divided into three main parts: head, body, and tail. There are two main functions of the pancreas, which are endocrine that secretes hormones, and exocrine that helps to digest food in the intestine.

Many pathological conditions can affect the pancreas and interfere with its normal function. Chronic pancreatitis is an inflammatory condition that can result from different causes. However, pancreatic cancer is the fourth leading cause of death in the United States. Although pancreatic cancer is a hereditary disease, it can be caused by different environmental factors, such as a high-fat diet, obesity, smoking, and some chemicals exposure. The key point of this research is the differential diagnosis between pancreatic ductal adenocarcinoma and chronic pancreatitis.

An accurate diagnosis of pancreatic tumors is a critical step to satisfy patients and keep them alive. Accurate histologic morphological changes detection and differentiation from chronic pancreatitis or normal pancreas are important in PDAC suspected specimen examination. Fortunately, Immunohistochemistry plays an essential role in the differential diagnosis between PDAC and chronic pancreatitis

METHODS

A research was performed using the electronic databases: PubMed, Science direct, and google scholar.

Inclusion criteria:

- Only English language researches are used.
- Include articles that based on diagnostic features of pancreatic diseases.

Exclusion criteria:

- Articles that do not have access to full text.

RESULTS

Many studies show that biomarkers that are negative or positive for pancreatic ductal adenocarcinoma and chronic pancreatitis cannot be used for the differentiation between them. For example, immunohistochemical staining for S100P biomarker is negative for both malignant and benign specimens; therefore, it cannot be used. Other proteins that have a positive expression in PDAC and negative in CP can be helpful in the differentiation, including IMP3, VHL, S100A4.

CONCLUSION

Differentiating pancreatic ductal adenocarcinoma from chronic pancreatitis should be based on combining findings from pancreatic function test results, radiologic, cytological, and histologic findings to make the right diagnosis and take the appropriate treatment decision.

KEYWORDS:
Pancreatic ductal adenocarcinoma, PDAC, chronic pancreatitis.

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MLS-30

Antibiotic resistance of pathogens in Intensive care unit & Operating Theater

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ABSTRACT

Resistance against antimicrobials was a vital driver of the results in the intensive care unit for patients (ICU). This is due mainly to insufficient therapy, typically linked to bacterial drug resistance, by antimicrobial medical treatment. Furthermore, the growing antibiotic resistance problem has significantly increased overall health care expenses. This growth stems from the need to create new antimicrobial drugs, extended hospitalization and recovery linked to the failure of antibiotic therapy, and more extensive infection control and public health actions aiming at controlling antibiotic disease spread. Unique because they accommodate severely diseased individuals in tight conditions with prevalent usage of antibiotics. They were the focus of antibiotic-resistant organisms. They have emerged and spread on a large scale. Effective antibiotic resistance prevention techniques in ICUs and OT have been designed to decrease inappropriate use of antibiotics and improve compliance with infection control management. Antimicrobial resistance should be included in their usual treatment regimens by clinicians looking after critically ill patients. From 2001 to 2004, several antimicrobial susceptibility studies on 824 consecutive *Streptococcus pneumonia* isolates were taken from all Kuwait's teaching clinics and primary care centers. Of them, 514 resistances (63%) to penicillin, 55% to intermediate resistance, 0.16-1 micro/ml minimum inhibitory concentration (MIC), and 8% complete resistance was observed. The prevalence of *S. pneumonia* drug-resistant isolates has significantly increased in Kuwait over the last 20 years, and Kuwait is now part of the penicillin-resistant *S. pneumonia* hyperendemic. League of States (PRSP). Kuwait can potentially focus on the further distribution of resistant clones to the rest of the world with a vast workers' expatriate community. This statistic is unique because it represents the whole population of Kuwaiti. At the local ICU level, careful, focused attention will have the most excellent chance of controlling the growth and diffusion of antibiotics resistance illnesses using a multidisciplinary strategy.

Keywords:

Intensive care unit (ICU), Operating theater (OT), Methicillin resistant staphylococcus aureus (MRSA), Multidrug resistance tuberculosis (MDR TB)

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MLS-31

Urinary Tract Infections in Geriatric

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Introduction:

A urinary tract infection (UTI) is an infection caused by microbes, Including bacteria, fungi and viruses.

UTIs are considered the most common infection in humans. In elderly, the urological problems in general are more common due to aged organs. Patients aged 65 years and older need greater attention and care, they represent a large proportion of urologist's patients. Geriatric field of urology is an important and challenging sub-specialty as the aged population are growing in numbers **(Drach et al, 2003).**

Studies show that UTIs are more prevalent and recurrent among women than men even if they are healthy and have normal genitourinary anatomy **(Arnold et al, 2016).**

As mentioned the most common infection among people is the urinary tract infection (UTI). The percentage from 75 to 95% of these isolated infections, are Gram- negative bacteria. The remaining proportions of UTIs are related with different organisms **(Kline et al, 2016).**

Serious health problems may be caused due to a UTI. If the UTI is left un treated, it can lead to acute or chronic kidney infections, which could permanently deteriorate vital organs and even may lead to kidney failure. Sepsis, may happen as a result of urinary tract infection, which is considered an extreme and a potential life-threatening to infection.

In this thesis we will highlight on a significant number of antimicrobial and non-antimicrobial modalities, including the usage of intravesical antibiotics and vaccines which are used for the suppression treatment of urinary tract infection **(Abou Heidar et al, 2019).**

Conclusion:

In conclusion, elder people are more vulnerable to urinary tract infections for many reasons, including their overall susceptibility to infections, partly because of weakness in their immunity. Therefore, one of the priorities in health care systems should be focused on reducing the frequency and the risk of mortality associated with sepsis in old aged populations.

Key Words: Urinary Tract Infections- Geriatrics- Gram negative bacteria- Immunity- Antibiotics.

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MLS-32

Stem cell registry

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Abstract

Stem cell therapy has become a very promising and advanced scientific study area in recent years. The advancement of therapy procedures has sparked high hopes. This paper offers an overview of the many stem cell discoveries and prospective therapeutics based on these cells. The origin of stem cells is followed by regulated stem cell culture and derivation in the laboratory. In evaluating the qualities of the stem cells evaluated, quality control and teratoma development tests are critical procedures. It's critical to use suitable derivation methods and cultured media to create the right environment for regulated differentiation. The adaptability of graphene scaffolds and the possibility of extracellular vesicle-based therapeutics warrants investigation among several sorts of stem tissue applications. The review is concluded by the obstacles that stem cell therapy must overcome in order to gain global acceptance. This cutting-edge therapy marks a turning point in contemporary medicine, bringing hope for diseases that are currently incurable.

To gather, organize, and communicate cell line-specific information, stem cell registries have been created. In this review, we provide an overview of the three major stem cell registries, including the European hES Cell Registry, the Registry of hES Cell Line Provenance developed by the International Society for Stem Cell Research, and the International Stem Cell Registry of hES and induced pluripotent stem cell lines established at the University of California, Berkeley. While each registry has its own mandate and features, the goals and information offered are somewhat similar. The challenges and potential for an integrated approach in which all three registries work together to eliminate duplication and enhance information interchange within the stem cell community are discussed in this paper.

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MLS-33

CORONA VIRUS

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INTRODUCTION

Coronaviruses are a large family of viruses that can cause diseases ranging from minor illnesses, such as the common cold, to more severe diseases, such as severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS). The virus can be transmitted from person to person through small droplets that are scattered from the nose or mouth when coughing or sneezing. Covid-19 symptoms range from mild to severe, and may appear within two to 14 days after exposure to the virus. An analysis of 928 cancer patients who contracted Covid-91A disease and presented during the SCO20 Virtual Scientific Program, a remote scientific program organized by ASCO, revealed that having an exacerbated active cancer was associated with a 5-fold higher risk of dying within 30 days compared to patients who their cancer goes through a remission period.

Main body

Coronaviruses belong to the subfamily Ortholos coranaviruses, in the family Coronaviridae, in the order Nightviruses. Coronaviruses are enveloped viruses with a positive-sense single-stranded RNA genome, and possess a homologous helical nucleocapsid. The genome of coronaviruses is about 26 to 32 kilo-bases in size, and is the largest among RNA viruses.

Coronaviruses are believed to cause a large proportion of colds in adults and children. Coronaviruses cause colds with major symptoms, such as fever and swollen appendages, especially in humans in the winter and early spring. Pneumonia coronaviruses may cause either viral pneumonia directly or secondary to bacterial pneumonia. They may also cause bronchitis, either directly from viral bronchitis or secondary to bacterial bronchitis.

Conclusion

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)-caused new coronavirus disease (COVID-19) pandemic remains a worldwide threat. Despite extensive research efforts throughout the world, researchers have yet to find an effective vaccination or viable treatment alternatives. As a result, the best app is infection prevention, early virus diagnosis, and discovery of successful treatment procedures. The greatest method to limiting illness transmission is early virus diagnosis and identification of viable treatment procedures.

KEYWORDS:
COVID-19 , SARS, MERS

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MLS-34

Triglyceride Rich Lipoprotein in Obese People As A Biomarker For Cardiovascular Disease

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INTRODUCTION:
Obesity is a common disease that is considered one of the main causes of mortality worldwide. Studies have focused on the relationship between body fat and cardiovascular risk factors. Some health problems are related to obesity, including hypertension, diabetes mellitus, and cardiovascular disease (CVD). Obesity has a significant effect on the pathophysiology of CVD and connected to enhancing the development of dyslipidemia
Several studies suggested elevated triglyceride levels as a biomarker for CVD. Studies have also shown a positive relationship between increase triglyceride-rich lipoprotein and increase risk of CVD. This literature review is aimed to focus on the relationship between elevated triglyceride levels, and CVD.

MAIN BODY:
Cardiovascular disease is one of the leading causes of morbidity and mortality in obese people**.** Any abnormal increase in body mass index raises the risk of coronary artery disease. High levels of triglyceride-rich-lipoprotein and small LDL are considered indicator markers of atherogenic dyslipidemia it is suggested that their cholesterol content contributes to the risk of atherosclerosis. There are many types of Apolipoprotein factors that play a role in Triglyceride rich lipoprotein metabolism. The alteration in these factors may lead to a significant impact on TRL metabolism and triglyceride levels, and thus on the atherosclerosis process and CV outcome. These changes include an increase in cholesterol, ApoE, ApoCI, and ApoCIII, as well as a decrease in ApoCII and VLDL ApoB catabolism.
Recent genetic studies of mutational analysis, genome-wide association studies, and Mendelian randomization studies revealed the role of triglyceride and triglyceride-rich-lipoprotein as a casual route for atherosclerosis and CVD.

CONCLUSION:

these studies discuss the causative role of triglyceride in atherosclerosis CV disease by using some genetic evidence for TG and TRLs in the casual pathway of ASCVD and these genetic studies strongly support the hypothesis that TGRLs is a causal cardiovascular risk factor.

KEYWORDS:

Cardiovascular disease , obesity ,dyslipidemia , triglyceride-rich-lipoprotein

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MLS-35

Uterine NK cells and failed IVF

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Abstract

Infertility is a disorder of the male or female reproductive system that prevents regular unprotected sexual intercourse from resulting in pregnancy. It is also a global issue that affects millions of people and has negative consequences for their families and social lives. IVF is the process of combining mature oocytes with sperm cells in the lab to produce embryos that are then implanted in the uterus . Unfortunately,Approximately 10% of women have failed IVF . There are some immune cells that affect The IVF such as T- helper cells (Th)which has two classes Th1 and Th2 and the the ratio between them has a big role to maintenance the pregnancy .TH1 cytokines are proinflam- matory and include interferon-gama. tumor necrosis factor (TNF) a, and interleukins (ILs) 1, 2, 12, 15, and 18. This paper will focuse on the failed IVF caused by Uterine NK cells.uterin NK cells and peripheral NK are different in many points. In addition to that, there are many risk factors can cause IVF failure :anti phospholipid antibodies , antinuclear antibodies ,elevated Nk cell ,NK cytotoxicity , elevated level of CD56+69+ and CD56+16+161+.Also, The ways of the interaction between the killer immunoglobulin like receptors are their ligand determines their functions to controlled IVF processes . Another aspect of the immune system connected to failed transplantation is hematologic illness. The most well-known is antiphospholipid antibody (APA) syndrome, which is thought to be caused by abnormal endovascular trophoblastic invasion in early pregnancy as a result of APA binding to trophoblastic cells and alterations in vascular endothelial growth factor. Understanding implantation phases is necessary to avoid IVF failed.Also, this paper show cohort study and its findings that are related to our topic.

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MLS-36

Review of SARS-CoV-2 main vaccine candidates rolled out in Kuwait.

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INTRODUCTION

The current pandemic of the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) is one of the most significant events to affect our world in modern history. It has substantially affected the economy, health system, and daily lives of people globally, leading to an unprecedented effort in finding ways to fight this virus, such as basic preventive measures and vaccine development. Two SARS-CoV-2 vaccines have been approved for use in Kuwait: (BNT162b2) Pfizer/BioNTech and AZD1222 (Oxford/AstraZeneca). BNT162b2 is an mRNA vaccine that codes for the viral spike protein, delivered into the body by a lipid nanoparticle delivery system, once it enters dendritic cells of the body a high level of spike protein is produced. AZD1222 uses a non-replicating recombinant adenovirus vector system to deliver DNA that encodes for the SARS-CoV-2 spike protein.

MAIN BODY

As of June 2021, a total of 1,820,000 vaccine doses have been administered. Despite the immense efforts rolling out these vaccines in the country; the conducted clinical trials of Oxford-AstraZeneca and Pfizer-BioNTech had a lack of representation of Kuwaiti individuals. Although all countries across the globe are affected by the disease there are disparities in populations. One of these disparities across populations is HLA allele frequencies. In order to develop a robust immune response against a pathogen, HLA molecules need to bind to the viral peptides to present them to T cells. Due to genetic diversity in the HLA system, there is a wide variation in the binding affinities of viral peptides. Previous studies have shown that HLA alleles confer differential susceptibility and severity in the context of infectious diseases. Variation in the HLA system may explain why some people develop minor symptoms while others are admitted to the ICU. This may be very well applicable and explain differential vaccine responsiveness of individuals.

CONCLUSION

Therefore, the results of vaccine effectiveness conducted in trials in the Western world may not necessarily reflect the same in our part of the world. This underscores the importance of having trials looking at vaccine efficacy in Kuwait and the GCC countries to account for the genetic variation in the HLA system.

KEYWORDS:
SARS-CoV-2, corona virus, vaccination, human leucocyte antigen

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MLS-37

SARS-CoV-2-specific T cell immunity in COVID-19

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INTRODUCTION

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a highly transmissible pathogenic coronavirus. Adaptive immunity is highly specific in recognizing foreign antigens as it protects us from infection. T cells are one of the two main cells of the adaptive immune system. They work as soldiers that search for targeted pathogens to eliminate them. T cells must have antigens presented to them they do not recognise antigens directly. This is done by antigen presenting cells specifically on their Major histocompatibility complex MHC molecules expressed on the surface of human cells also called Human leukocyte antigen (HLA molecules).The Interactions between multiple T cell surface structures and their respective ligands on antigen-presenting cells are required to activate the T cells. Adaptive immunity has a special feature which is the immunological memory as it can remember and recognize the pathogenic agent after the initial response.

MAIN BODY

There are the CD4 helper T cells and CD8 cytotoxic T cells. The presence of CD8+ T cells presence was associated with less severe of COVID-19. The SARS-CoV-2 CD8+T cells have specificity for certain antigens of SARS-CoV-2, well represented of them include the Spike, M, and nucleocapsid antigens. In acute cases of the COVID-19, CD8+T cells produced molecules of high levels, having potent cytotoxic functions. Some of those molecules include IFNγ, perforin, and granzyme B. CD4 T cells help recruit innate cells and help B cells secrete antibodies. CD4+ T cells that react with homologous sequences of other Human Corona viruses (HcoVs) cross react against the SARS-CoV-2 epitopes individuals unexposed to SARS-CoV-2 .

CONCLUSION

T cells can act as a double-edge sword with both pro- and anti-roles in the progression of COVID-19; important to understand their roles in immune responses to SARS-CoV-2 infection. T-cell reactions can be imperfect, disabled or excessive in severe COVID-19 patients. T cells in addition to their important role in controlling viral infections are also important in development of the vaccines which lead to immunological memory. Dominant and the sub-dominant SARS-CoV2 HLA class I as well as HLA-DR peptides are continually identified as primary T cell epitopes in the both COVID-19 recovered and unexposed population.

KEYWORDS:
T cells , SARS-Cov-2, HLA

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MLS-38

The link between chemokines and immune infiltration in colorectal liver metastasis

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Supervisor By: Dr. Dalal Almuaili

Abstract:

Colorectal cancer (CRC) is one of the most common cancers globally and the second most common cause of cancer in mortality. Metastasis is a multistep process that begins once tumor cells exit the primary tumor and survive in blood or lymph circulation, and seed in the distant site and grow. The liver is the most metastasis site in CRC. Chemokines are a family of cytokines. They are small proteins that play a role in stimulating differentiation, multiplying leukocytes, and inducing chemotaxis. The tumor microenvironment involves numerous tumor cells, immune cells, and chemokines interactions that promote invasion and metastasis.

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MLS-39

Investigation the clinical importance of CYFRA21-1 as a tumor marker in patients with cancer

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Introduction:
Cancer is one of the major leading causes of death worldwide and it is defined by the change of normal cells into tumor cells in a multi-stage process and it is caused by the interplay of a person's genetic factors with multiple exogenous forces. However, in recent years the free-disease survival rate of some cancer has been enhanced due to the development of cancer biomarkers.

Main body:

Biomarkers in general are biological substances or molecules found in the patient's body fluids or tissues that is indicating of an abnormality or a disorder. In the cancer field, different biomarkers were utilized successfully for cancer screening, prognosis, diagnosis, treatment monitoring, and assessing the risk of disease recurrence. Among these markers is the Cytokeratin 19 fragment antigen (cyfra 21-1) that is a serum soluble fragment released into the circulation after the digestion of the C-terminal of filamentous b an enzyme called caspase-3. Normally, its release in the circulation is a sign of cellular apoptosis. As a biomarker, the potential use of cyfra 21-1 remains controversial and thus this review will shed the light on the role of cyfra 21-1 as a prognostic and diagnostic marker in cancers in addition to possible limitations that may affect its utilization as a cancer-related biomarker in the clinics.

CONCLUSION
Serum cytokeratin 19 fragment antigen (cyfra 21-1) is a promising biomarker, however, before the approval of using it as a routine cancer marker, an excessive assessment and evaluation of its consistency as a prognostic and diagnostic marker should be reported by several studies as its suffers from certain limitations like the lack of standard cut-off value and the techniques being used to detect such marker has their own limitations as well, which is considered an issue that should be resolved with the development of an improved test to be used as a standard test across laboratories.

KEYWORDS:
Cancer, Biomarker, cyfra 21-1

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MLS-40

Exploring the role of CK19 and serum fragment Cyfra 21-1 in Ovarian cancer

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Introduction:

Ovarian cancer kills more women than any other female gynaecological malignancy. The most encountered type of ovarian cancer and the fatal gynaecological malignancy is epithelial ovarian cancer. There are no efficient early detection procedures for ovarian cancer, causing 80% of EOC to be discovered after cancer metastasized into different tissues. Therefore, most efforts were focused on identifying biomarkers to enable clinicians to detect cancerous cells in the ovaries at earlier stages.

Main Body:

Multi-biomarker panels are now being developed as a strategy to improve the sensitivity and specificity of ovarian cancer detection. Despite the use of a panel of markers, none of the indicators are specific or sensitive enough to be utilized alone, and many researchers are still looking for a high-quality biomarker that can not only detect but also predict cancer. Cytokeratin 19, which is a small acidic type I cytokeratin and is important for identifying cancer cells, and Cyfra 21-1 that is a soluble CK19 fragment were among the studied markers that showed a potential to be used as biomarkers in ovarian cancer detection, prognosis, and treatment. It has been shown that the CK19 overexpression in EOC is responsible for the initiation of cancer cell invasion, proliferation, and migration. On the other hand, a high Cyfra 21-1 serum level was shown to be associated with positive retroperitoneal lymph nodes involvement, platinum treatment resistance, and a poor overall survival rate in cancers. These findings suggest a potential new therapeutic target for ovarian cancer clinical detection and treatment.

Conclusion:

Despite the reported potentials of these two markers, their use as standard biomarkers in clinics for ovarian cancer remains explicitly controversial as more research is needed to determine the roles of these markers in ovarian cancer and to validate them as effective cancer-related markers that may be used in routine clinical testing alone or in combination with other biomarkers.

KEYWORDS:

Ovarian Cancer[1], Epithelial ovarian cancer[2], Cytokeratin 19[3], Cyfra 21-1[4]

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MLS-41

An Overview of Toxoplasmosis and Mental Health

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INTRODUCTION

Toxoplasmosis is caused by *Toxoplasma gondii*, an intracellular Apicomplexa protozoan. The disease is widely distributed and considered to be one of the most prevalent parasitic diseases in the world. Hence, it is considered to be a global public health threat.

T. gondii has the ability to cross the blood-brain barrier and infect neurons and brain cells, causing latent toxoplasmosis. This chronic stage of the disease causes serious complications, particularly in pregnant women and immunocompromised individuals. Although, this would not induce pathological symptoms, at least for people with normal immunity. Recently, it has been speculated to be associated with alteration of human behaviour and some mental health illness.

In the literature review, we aim to assess the literature on toxoplasmosis and its relevance with general mental health conditions. This review would bring to light the recent studies on the subject.

MAIN BODY

The literature suggests a strong link between *T. gondii* infection and alteration of human behaviour and developing some mental health illness. A link was mentioned in many scientific researches in mice and humans across different mental health illnesses with variable frequency. Human clinical studies evidently linked several mental health disorders including schizophrenia, bipolar disorder, obsessive compulsive disorder, Alzheimer disease and Parkinson's disease to latent toxoplasmosis. Several possible mechanisms have been proposed including modulation of neurotransmitters, parasite tissue cysts localisation in the brain and immunological stimulation of cytokines.

CONCLUSION

T. gondii infection causing latent toxoplasmosis can induce behavioural change, psychological and neurodegenerative disorders in mice and humans. A strong link was demonstrated in many scientific researches across different mental health illnesses with different rates.

Whether *Toxoplasma* infection increases the risk of neurosis and/or psychosis or the latter increases toxoplasmosis is still not clear and needs further research. The importance of controlling toxoplasmosis transmission is not only necessary to reduce the disease and its serious complications but is also needed to lower the risk of mental health problems in the most vulnerable group.

KEYWORDS

Toxoplasma gondii, Toxoplasmosis, Mental health

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MLS-42

Challenges in Diagnosis and Management of Invasive *Candida* Infections in the Intensive Care Unit

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INTRODUCTION: *Candida* species are opportunistic pathogens, and some species reside as a normal flora in human body. They are kept under control by local and systemic immune defence mechanisms. If this control is lost, *Candida* becomes an opportunistic pathogen and causes superficial and invasive infections, including candidemia with a high mortality rate in the Intensive Care Unit (ICU). The ICU environment has a distinctive nature that differs from other hospital departments, which makes it a focal point for many antimicrobial-resistant pathogens to spread. The most critical factors in the ICU contributing to the risk of invasive candidiasis are the broad-spectrum antimicrobials use, immunosuppressive drugs, vascular catheters by breaching the natural barrier, renal replacement therapy and surgery. Any delays in the diagnosis will increase the mortality rate of ICU patients, especially candidemia cases.

MAIN BODY: Methods used to diagnose invasive infection caused by *Candida* species usually rely on culture-based methods with low sensitivity and long turn-around times. In addition, those methods will need to be followed by other methods for testing the antifungal susceptibility testing. Molecular and serological diagnostic methods can provide a valuable adjunct to more traditional approaches. However, they are not fully standardised for clinical use, and only some were approved by the Food and Drug Administration (FDA). More work is needed to evaluate and validate these methods for use as a rapid diagnostic test in a clinical setting for rapidly detecting and identifying *Candida* species.

CONCLUSION: Rapid and accurate diagnostic tools and nonculture-based methods are needed to guide the choice of appropriate antifungal drugs and improve patient outcomes. For positive outcomes, early diagnosis is essential for decreasing mortality rates and infection management.

KEYWORDS:

Invasive fungal infection, Intensive care unit, Candidemia

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MLS-43

The Impacts of Co-infection with *Aspergillus fumigatus* and *Pseudomonas aeruginosa* on the severity of respiratory diseases

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INTRODUCTION: Microbes commonly exist as complex polymicrobial communities rather than single species. Polymicrobial interaction can be useful or harmful to both species, resulting in unexpected effects on the human. Individuals suffering from cystic fibrosis or chronic obstructive pulmonary disease are vulnerable to respiratory infections caused by various microbial species. Interspecies interactions may have an impact on microbial pathogenesis by changing virulence factors and disease progression. The fungus *Aspergillus fumigatus* is considered one of the most common causes of fungal pulmonary infections in immunocompromised individuals. However, the bacterium *Pseudomonas aeruginosa* is the most common cause of bacterial infections in those patients.

MAIN BODY: *P. aeruginosa* releases a variety of virulence factors based on the host environment and nutrient availability, such as phenazines, iron competition, the quorum sensing system, small colony variants, and bacteriophages. These virulence factors can affect the inhibition of *A. fumigatus* as well as aiding the bacteria's survival. In comparison, *A. fumigatus* retaliates inhibition by gliotoxin production and phenotypic changes that allow it to avoid *P. aeruginosa* inhibition. During co-culture, *A. fumigatus* can also impede *P. aeruginosa* development by using its unique metabolism and signalling molecules Co-infection of the lungs by these pathogens is linked to a poor prognosis for the patient. *P. aeruginosa*'s susceptibility to antibiotics is reduced by *A. fumigatus*, which increases chronic infection.

CONCLUSION: The interaction between these two species leads to worse outcomes and difficulty eradicating diseases. Explaining how these interactions affect disease progression is crucial in order to improve therapy in patients infected with mixed species.

KEYWORDS:

Interspecies interactions, phenazines, cystic fibrosis

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MLS-44

Wound Healing Using Olive Oil Extract

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INTRODUCTION

Olive oil extract is proven to naturally aid in the healing of wounds and injured tissues. This is mainly due to its phenolic composition, antimicrobial, and anti-inflammatory properties. The extraction of olive oil is done by pressing whole olives by physical or chemical means using different equipment. One of the reasons for choosing olive oil for wound healing is because of it containing fatty acids, which suppress the progression of many cancer forms in addition to the prevention of neurological, cardiovascular, and thrombotic disorders when a monosaturated fat rich diet is followed. In this literature review, effects of olive oil extract on wound healing process will be explained in details.

MAIN BODY

One research studied olive oil's effects on bacterial contaminated burn wounds. In comparison with the regular dressing, olive oil had significant outcomes shown through the histopathological examination results. The effects of olive oil along with 5% sea buckthorn on full-thickness burn wounds, which showed major improvements, were studied in another research. Olive oil was also used as a treatment with honey on diabetic foot wounds. The wound's healing, grade, tissue around it, and drainage scores were higher than before treatment. Another study aimed to investigate the role of olive oil on the wound healing of pressure injuries in mice through NOS-2 and Nrf2. It was concluded that olive oil shortens the recovery time and quickens the wound healing process.

CONCLUSION

In conclusion, due to olive oil having a major impact on the healing of wounds, it can be used as a dressing instead of using the routine dressing for wounds. It resulted in being both effective and helpful when used on contaminated burn wounds, due to its antimicrobial properties, and for chronic wounds when used with Aloe Vera. It showed promising healing results by participating in pain alleviation. Also, it was the most beneficial in the treatment of diabetic foot wounds along with honey. As for pressure sores, it promoted the wound recovery by reducing inflammation. Finally, more investigation is needed to identify which active components are responsible for olive oil's therapeutic capabilities.

KEYWORDS:
Olive oil, Wound healing, Treatment

View Poster

MLS-45

Thrombosis in COVID-19

Sarah Maqtouf

INTRODUCTION

• TheCOVID-19 outbreak caused by SARS-CoV-2, with the risk factors is related to worse prognosis in severe COVID-19 hospitalized patients, raising hospital mortality to 42% (Gomez-Mesa et al, 2021). Some hypotheses and autopsy findings supported the diffuse pulmonary microthrombosis in the refractory hypoxemia of severe cases (Rivas-Fuentes et al, 2021).
• this literature review discusses the causes of thrombosis in COVID-19 patients.

MAIN BODY

A hypothesis stated " A potential pathophysiological mechanism of SARS-CoV-2 infection in endothelial cells could be the blocking or neutralization of the natural function of the ACE 2 receptor. This condition causes the overexpression of chemokine CX3CL1, which would promote endothelial damage due to the recruitment of immune cells and have a prothrombotic effect derived from platelet activation contributing to the physiopathology of COVID-19" (Rivas-Fuentes et al, 2021).
• A hypothesis states "Due to an internal injury in the endothelium of blood vessels, either directly by SARS-CoV-2 infection (binding of the virus with the ACE2) or by virus mediated inflammatory immune response, result in vasoconstriction and coagulation activation and blood clotting pathways, resulting in the formation of clots" (Biswas et al, 2020).
• The findings of Iba et al, 2020 review show that in initial phase of the disease, D-dimer and fibrinogen levels are raised, while APPT, PT, and platelet counts are normal as a result of interactions between host defence mechanisms and the coagulation system.
•A study of COVID-19 hospitalized patients shows that residue of NETs and neutrophil-derived (calprotectin) in patient sera were at higher risk of thrombosis despite prophylactic anticoagulation (Zuo et al, 2021).

CONCLUSION

Thrombotic complications are common among COVID-19 patients and are related to death rate and morbidity. As PE have been obtained in some of the autopsies of patients with or without evidence of venous VTE, the presentation of acute PE may elucidate some cases of sudden right ventricular dysfunction, cardiogenic shock, and sudden death in addition to troponin elevation. Several thrombotic mechanisms are potentially involved in COVID-19 thrombosis. Currently, it is unknown which of them obtain the main dominance in the coagulation in COVID-19 patients.

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MLS-46

Polymicrobial Biofilm Between *Candida albicans* and *Staphylococcus aureus* and the Effects on Antimicrobial Resistance

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Microorganisms rarely occur as a unicellular form, but they usually present as part of complex polymicrobial communities. Many microbes in their natural domain are found in biofilm environments attached to surfaces and not as free-floating (planktonic) organisms. In the clinical setting, *Candida albicans* can be frequently isolated from human infections and commonly associated with multi-species biofilms. *C. albicans* and *S. aureus* both can form biofilms and thus are commonly found growing in polymicrobial biofilms. These biofilms can be formed on indwelling medical devices and act as a source of nosocomial bloodstream infections. It is estimated that 27% of nosocomial *C. albicans* bloodstream infections are polymicrobial with *S. aureus.* Polymicrobial biofilms between *C. albicans* and *S. aureus* were consistently more tolerant to antibiotics, in which the presence of *C. albicans* increased tolerance of bacteria to antibiotics. In addition, these biofilms are difficult to treat as the complex structure of the biofilm protects the organisms by impeding drug permeability and immune cell access. *S. aureus* resistance to vancomycin was enhanced within the polymicrobial biofilm, required viable *C. albicans*, and was in part mediated by *C. albicans* matrix. However, the growth or sensitivity to amphotericin B of *C. albicans* is not altered in the polymicrobial biofilm. Understanding whether resistance mechanisms can be mediated by mixed biofilm would be a significant finding and could improve patient outcomes in the future. In this review, the relationship of the mixed biofilm between *C. albicans* and *S. aureus* and their antimicrobial resistance was discussed.

Keywords:
Polymicrobial biofilms, Antimicrobial resistance, *Candida albicans*

View Poster

MLS-47

Effects of smoking on coagulation screening tests

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INTRODUCTION:

The coagulation process plays a vital role in blood hemostasis and prevents blood from being lost in injury or surgical procedures. In coagulation, blood converts from liquid to semisolid state(gel), forming a blood clot. This process consists of a series of chemical and enzymatic reactions. There are several factors involved in this process such as extrinsic and intrinsic factors and common pathway factors. Coagulation screening tests PT, APTT, TT: Measure your blood ability to clot, which helps your doctor evaluate your risk of excessive bleeding or developing a clot. The review will not explore the effect of smoking in all the coagulation tests but only the screening coagulation tests.

METHODS:

A systematic review was performed to prepare this research. We searched through the Internet using Google scholar and Pob-Med databases. The study questions are:
1. What is a coagulation screening test?
2. What is Effects of smoking on coagulation screening tests?
Articles related to the topic of the research collected were nearly 55 articles, and then the articles were sorted to choose the most suitable that meet the inclusion criteria approximately 20 articles were included, systematic review analysis was followed to sort the articles.

RESULTS:

As a result of the study, it was revealed that the levels of the effect of smoking on blood clotting, according to the studies presented, were at a high level, and many of the studies that I collected on this subject were unanimously agreed upon. Hence, we urgently need to reduce the proportion
of smoking, due to its direct effect on blood clotting.

DISCUSSION & CONCLUSION:

Smoking and its toxic components changes the surface of plt, which makes them aggregate easier leading to blood clot and smoking damages epithelial lining at blood vessels, which increases the potential for clots to form. As we mentioned earlier that smoking is strongly linked to abnormal coagulation this abnormal test results in coagulation screening tests. Smoking negatively affect the body mechanism related to coagulation such as ;- Fibrinogen synthesis

KEYWORDS:
Coagulation , prothrombin time, Activated partial thromboplastin time

View Poster

Occupational Therapy (OT)

Awarded Posters OT

No.	Student Name	Title
1st	Aeshah Almutairi Shahad Alajmi	Stress and psychological well-being of mothers of children with autism spectrum disorder (ASD) during COVID-19 pandemic in Kuwait
2nd	Fatma Al-Mutairy Reham Alarmeli	The investigation of parents needs of children with intellectual disabilities
3rd	Maha Aldhaferi Shaikha Alotaibi	Musculoskeletal Injuries Among Video Gamers and its Effect on Daily Occupations: A Pilot Study

OT-01

The Impact of Covid-19 Pandemic on Occupational Therapy Services: An Exploratory Study

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INTRODUCTION: During this pandemic, the world needed more special care from medical staff and allied health care including occupational therapy (OT) where everyone had to give a hand and work together in order to overcome this pandemic. The aim of the study is to explore the general impact of COVID-19 pandemic on occupational therapy services.

METHODS A cross-sectional and descriptive study was conducted in order to identify the general impact of covid-19 pandemic on occupational therapy services. A developed questionnaire of an English version was used in this study to assess and identify the how covid-19 pandemic effected the occupational therapy services.

RESULTS: A total of 100 occupational therapist participated in this study. They were from different countries in different areas of practice. The results indicated that occupational therapist had partial support from the administration/department during covid-19 as well as using tele-rehabilitation and therapist felt somewhat fear of being infected.

CONCLUSION: The pandemic has somewhat influenced the role of occupational therapy services. This study was able to provide preliminary evidence that supports value of tele-rehabilitation as a new method for conducting occupational therapy assessment and intervention. Further well- deigned studies are recommended on larger population of occupational therapist and longer periods to document the effectiveness of using tele-rehabilitation during such unprecedented pandemic.

KEYWORDS:
Occupational therapy, covid-19, tele-rehabilitation

View Poster

OT-02

Musculoskeletal Injuries Among Video Gamers and its Effect on Daily Occupations: A Pilot Study

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INTRODUCTION
Video games industry is rising through time as the statistics in 2018 showed that video games sales were up to US$134.9 billion annually worldwide. Nowadays, almost everyone has at least experienced playing video games once in different age groups. The extended time spent on playing videogames may result in musculoskeletal injuries, which in turn may lead to limitations in daily life activities. The **purpose** of this study was to investigate musculoskeletal injuries among video game players, and to identify the effects of musculoskeletal injuries on occupation.

METHODS
A non-experimental, descriptive, and cross-sectional methodology was used. A self-developed questionnaire which targeted video game players was published online through the social media networks. Regular reminders were published within 10 days of the original post.

RESULTS
875 individuals participated in the study (mean (SD) = 23 (8.2) Years). 31.4 % of the participants reported musculoskeletal injuries. The Neck was the most affected site of injury (36.1%) followed by low back (25.3%), then the hand/wrist (15.4%). The most effected occupation was “sleep” across all the reported injury sites. In addition to musculoskeletal injuries, 65.12 % of videogame players reported having complaints of headache.

CONCLUSION
The study highlighted the prevalence of musculoskeletal injuries among video gamers, and their impact on daily occupations. Public awareness programs on minimizing such injuries are warranted.

KEYWORDS:
Video games, video gamers, musculoskeletal, occupations

View Poster

OT-03

Health-Related Quality of Life and Related Factors among Primary Caregivers of Children with Mental Illness: Literature review

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Abstract

Introduction: As children with mental illness experience difficulties in many aspects of their life, usually they are being supervised and protected by a caregiver. Furthermore, caregivers sacrifice a lot of time and experience social separation as being a caregiver especially for those who take care of their children for long time. The major problem here that often the caregivers are ill-prepared for their role physically, emotionally, and socially as well. After comparing the 12 articles that have been used on this review using specific databases, evidence showed that most caregivers experience a significant decrease in their quality of life also the balance of activities of daily living was affected.

Main Body: A literature review studies was carried out by using the relevant electronic databases. The search comprised mainly of references published from 2011 to 2021 which were reviewed. Potential studies were included if they considered a primary caregiver and focused on caregiver's QOL related to their children presented with mental illness as well as the associated burden of caregiving for these children. Furthermore, studies were excluded if they published before 2011 as well as studied without full text access. The review findings suggest that taking care of children with mental illness might cause physical, social, emotional, and economic distressing effect among their primary caregiver and thus influence their QoL in a negative way. In addition, balance of daily activities for these caregivers was largely affected. Additionally, this study has practical implications for health care professionals as well as policymakers to assess the improvement of HRQOL among caregivers of children with mental illnesses.

Conclusion: The caregivers of children with mental illness experience a decrease in their Qol compared with other caregivers who don't have children with mental illnesses. Appropriate strategies should be undertaken to enhance QoL among these children's caregivers. It is necessary that interventions can reduce the effect that children with mental illnesses have on caregiver. Moreover, future research studies in Kuwait should examine the psychosocial issues among the caregivers of children with mental illness.

Keyword: Quality of life; Caregivers; Mental illness.

View Poster

OT-04

Treatment options for Trigger Finger: A literature review

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Introduction
Trigger Finger is characterized by a pathological thickening of the flexor tendon, typically at the level of the A1 pulley system, which can impair one's ability to function and perform activities of daily living. Multiple treatment options are available for Trigger Finger, but with no definitive evidence on best approach. The **purpose** of this review is to compare and contrast between treatment options for trigger finger.

Methods
The main healthcare databases were searched for a combination of keywords related to "trigger finger" and "treatment" between the years 2015 and 2021. The inclusion criteria consist of the subjects to have been clinically diagnosed with trigger finger, and aged 18 years or older. Articles that include patients with comorbid medical conditions were excluded. A total of 11 articles were included in the review.

Results
The review findings revealed that the symptoms of trigger finger can be treated through different treatment options. The main options were splinting, corticosteroid injections, and surgery. No definitive treatment was superior to another, with various factors contributing to treatment effectives. The main factor seems to be the stage to triggering.

Conclusion
This study highlighted the main treatment methods for trigger finger, and provided suggestions for such treatments. More research is needed to identify a more conclusive treatment option for Trigger Finger.

Keywords
Trigger finger, Stenosing tenosynovitis, treatment, intervention, conservative

View Poster

OT-05

Clinical reasoning among practicing occupational therapists in Kuwait: exploratory study

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Abstract

Objective: Understanding the efficiency of occupational therapists' clinical reasoning skills reflects their ability to choose the appropriate intervention plan. The aim of our study is to explore clinical reasoning among practicing occupational therapists in Kuwait, in various areas of practice.

Method: The design of the study is qualitative, descriptive and cross-sectional. Eight occupational therapists working in different areas were recruited to participate in this study. At first, a demographic sheet was filled by the participants, then an interview was conducted consisting of seven questions. These interviews were audio-recorded and transcribed.

Results: Three themes were found. The first theme was: meaning of clinical reasoning. The second theme was: essence of clinical reasoning process, consisting of four sub themes: 1. Knowledge base, 2. Clinical experience, 3. Availability of resources, 4. Team working. The third theme was: achievement of best practice, consisting of seven sub themes: 1. Continuing professional development, 2. Attending seminars and educational workshops, 3. Application of updated evidence based practice, 4. Caregiver education, 5. Home program, 6. Home visits/home modifications, 7. Utilization of technology

Conclusion: The therapists' understanding of clinical reasoning, including the theoretical and practical aspects of it, as well as remaining updated with the latest evidence, are found to be the factors that influence their practice.

Key words: clinical reasoning, occupational therapy, exploratory study

View Poster

OT-06

The investigation of parents needs of children with intellectual disabilities

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Introduction:

Intellectual disability (ID), is an umbrella term, which means having poor skills that are needed to proceed a normal life, it affect children's developmental milestones greatly and their parents. Parents of children with ID face some problems that impact their everyday life and role as caregivers leading to limitations and creating new needs for them. The purpose of this study is to investigate the problems that parents of children with intellectual disability are prone to develop, specifically in seven main domains ; primary needs/ resources, education/leisure, employment/finances, transportation, emotional health, daily care, and access to services.

Methods:

In this non-experimental cross-sectional and descriptive study, 95 parents of children with ID aged from 1 to 12 years old, were chosen from governmental and private hospitals for children to answer two questionnaires. A socio-demographic questionnaire and the Family need scale (FNS).The questionnaires were given face to face to the parents in the hospital or indirect contact through an online form of the questionnaire.

Results:

Parents education and economic status had a statistical significant difference (P= 0.027,0.001) in employment/finances, access to services (P= 0.039) and primary needs (P= 0.002) which are lower than the P-value (0.05). On the other hand, Parents age, gender, social status and nationality did not have significant correlation or high difference with the seven domains of the FNS ($P < 0.05$).

Conclusion:

The results, demonstrated that parents show the need for help in three main domains one at a time or all together, which are employment and finances, access to services, and primary needs and resources regardless of their economical status and mostly when the parents have lower educational level.

Key words: Intellectual disability, parents, Family needs scale.

View Poster

OT-07

Effectiveness of Group Therapy Program for Dementia Caregivers: Literature Review

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Abstract:

Caregiving of patients with dementia has contributed to applying burden on the caregiver by decreasing their QoL and restricting their participation in other occupations (occupational imbalance). This review is an examination of the effectiveness of group therapy program for dementia caregivers. The massive load on the caregiver mentally and physically could interfere with their daily life performance, because they get very occupied with the needs and demands of the client, they are taking care of and that will affect their mental and physical wellbeing indeed. In recent years, the population of individuals suffering from dementia has increased considerably. One study report that in every two decades, this number may increase by two times. Therefore, in terms of research studies and interventions to tackle the problems of patients and their caregivers, it is becoming an increasingly important area to focus on. Caring for dementia patients is a difficult task. And it contributes to an excessive burden on caregivers, which needs to be addressed along with the symptoms of the patient. Caregiver burden is the term used to denote the distress that can be experienced in the form of physical, emotional and/or financial strain by family members or caregivers of patients who are chronically ill who require assistance from caregivers on a day-to-day basis. The purpose of this review is to examine the effect of group therapy program on dementia caregivers. This review will help us to find out the effectiveness of group therapy for dementia caregivers to reduce the burden they carry as well. A systematic search was carried out using the relevant electronic databases: Google Scholar and PubMed. All articles that were searched were in English. Electronic data bases were searched to review about group therapy interventions for dementia caregivers and the studies included in the literature were published between the years 2017 and 2021. Results indicated that the caregivers of patients with a diagnosis of dementia showed the most positive benefits from group therapy interventions. Improvement in self-care habits and reduced emotional symptoms are two examples of the outcome measures. In conclusion, the caregivers of patients with dementia in the experimental group experience an improvement in their QoL and a decrease in the burden they carry comparing them with the control group after receiving a group therapy intervention. Group therapy intervention is considered an effective method of treatment.

Key words: Caregiver; Support; Group Therapy; Dementia.

View Poster

OT-08

Anxiety among occupational and physical therapists of contracting COVID-19 while treating patients

Supervisor:
Dr.Musaed alnaser

Students:
Asmaa Alkanderi, Sabikah albaloul, Sabeeka Alhoutti

Abstract:

Intro

Anxiety is a major issue that people may experience during their life span, and it can affect the quality of life and the performance of every day activities. Some studies conducted that the anxiety has significantly increased among health care workers and this might affect the QOL. Because OT and PT are working directly with clients who might carry the virus, this might create a feeling of anxiety among the therapists. **Purpose**: the purpose of our study was to determine wether OT and PT developed anxiety during the therapy interventions due to fear of contracting COVID-19 from patients

Participants:

79 participants were recruited for the study. Inclusions criteria: 1) OT and PT, 2) male and female, 3) aged between 21 to 65 yr, 4) practiced during COVID-19 pandemic

Instruments:

Two instruments were used, one is self test for anxiety. It is a questionnaire consistent of 7 questions, and it designed to find out if a person has an anxiety disorder. Physical Health Questionnaire was used, and it comprises 15 somatic symptoms

Results:

A total of 79 participants were assigned to our study, respondents were 71 female (89.9%) and 8 male (10.1.%). Only 66 participants were practiced during COVID-19 pandemic, 40 OT (60.6%) and 26 PT (39.4%).The Mean was=6.82, SD= 5.188 for anxiety questionnaire. And or the Physical Health Questionnaire(PHQ), mean was= 21.38, SD = 5.862. T-test showed that there was a positive correlation between anxiety and physical symptoms, r= 0.05, n=66, p= <0.001.Chi-square showed that there was an association between the quality of intervention and the effectiveness due to COVID-19, x (17)=29.65, p=0.029.

Conclusion:

The study highlighted a positive correlation between COVID-19 and anxiety among occupational and physical therapist while treating patients.

Key word: OT, PT, anxiety, quality

View Poster

OT-09

Stress and psychological well-being of mothers of children with autism spectrum disorder (ASD) during COVID-19 pandemic in Kuwait

Aeshah Almutairi[1], Shahad Alajmi[2]
and Mehdi Rassafiani[3]
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INTRODUCTION

Mothers raising children with ASD put more time into taking care of their children. As a result, they experience greater stress and poorer well-being compared to mothers of typically developing children. The maladaptive behaviors of ASD children were exacerbated after drastic changes such as disruptions of school, healthcare services, and changes in routine due to COVID-19 restrictions. Consequently, these changes in the children's behavior worsens mother's stress and well-being. Therefore, the purpose of this study is to examine the stress and psychological well-being of mothers raising children with ASD during the COVID-19 pandemic.

METHODS

A cross-sectional non-experimental descriptive study. The study obtained quantitative data from 71 mothers of children with ASD from governmental and private clinics using an online questionnaire. The data collected included demographic data of the mother and child, mother and ASD support during COVID-19 pandemic, parental stress, and psychological well-being. The Parental Stress Scale (PSS) was utilised to obtain data related to mothers' stress and the Psychological Well-Being Scale (PWB) for the mothers' psychological well-being.

RESULTS

The results showed that employment status and family income had an impact on the mother's psychological well-being. In addition, mothers who were married and had higher level of education than high school scored higher in the psychological well-being scale. Finally, mothers who did not receive support during the COVID-19 pandemic experienced higher stress according to the parental stress scale.

CONCLUSION

Overall, the study found that the parental stress and psychological well-being of mothers of children with ASD in Kuwait had been negatively impacted during the COVID-19 pandemic. The authors of this study suggest the involvement of the Kuwaiti government to provide psychological support for the mothers of children with ASD, and for healthcare providers such as occupational therapists, to consider mothers well-being.

KEYWORDS:
Autism, mothers, children, COVID-19

View Poster

OT-10

The extent of collaboration between occupational therapists with other health care professionals and vice versa.

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INTRODUCTION

Collaboration is two or more people working together to achieve defined and common purpose through effective discussion of developing plans and sharing expertise. Occupational therapy collaborates with different health care professions include nurses, physical therapists, physicians to provide appropriate care, support, and treatment. However, there is a as no research has been undertaken in Kuwait to examine the relationship between occupational therapists and other healthcare professionals. The aim of this study is to measure the level of collaboration between occupational therapists and other health professionals in a clinical setting.

METHODS

This study is cross-sectional non-experimental descriptive study. A quantitative data has been obtained from 43 Occupational therapists and 155 of physical therapists, nurses, and physicians who work in governmental and private clinics by distributing the papers and using an online questionnaire form. All variables relating to collaboration will be self-reported. The main variables of the investigation are extent of collaboration, age, gender, years of experience, educational level, area of practice, year of graduation, and nationality.

RESULTS

A chi square test was performed to show the significant difference in collaboration between physical therapists, physicians and nurses with occupational therapist. The result of ANOVA analysis showed that there was no significant difference ($F(17)=1.177$, $P=0.291$) between the groups in collaboration. There was significant difference in collaboration between in-patient and out-patient with physical therapist. There was positive correlation between age of physicians and nurses incollaboration with occupational therapy.

CONCLUSION

The collaboration among occupational therapist and other health care professionals was in the same level and this could indicate that the professions don't understand the main role of occupational therapy. Physical therapists who work at the in-patient area have better collaboration with occupational therapist and this because they work close to each other to achieve the same goal. Finally, as age increase there are better collaboration between physicians and nurses with occupational therapist because they have more experience and knowledge about the occupational therapy.

KEYWORDS:

Collaboration, teamwork, Rehabilitation, coordination models, Interprofessional

View Poster

Physical Therapy (PT)

Awarded Posters PT

No.	Student Name	Title
1st	Altaf AlOtaibe Badreya AlYahya Hend AlKhudhari Maryam AlAzemi	The Prevalence of Depression, Anxiety, Stress, Insomnia and the Associated Factors Among Healthcare Workers in the State of Kuwait During the COVID-19 Pandemic
2nd	Dana AlJazi Mariam Kassem Sara Dardir Shooq Alhebeedah	Online Education for Health-related Professions; Should It be Encouraged After the Crisis?
3rd	Zainab Arfaj Fayee Farhood Gharam AlEnezi Hoda AlZoabi	Telerehabilitation as an alternative approach for physical therapists working in the MOH of Kuwait during COVID-19: knowledge, application, and challenges

PT-01

The Perspectives of Physical Therapists Concerning Emotions and Feelings During Therapeutic Sessions

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Introduction: being a physical therapist can be stressful and therapists may experience situations that place strain on their emotions. It is unclear if physical therapists incorporate attention to emotions and feelings during their sessions in Kuwait.
Objective: The aim of this qualitative study was to interpret experiences of therapists' emotions and feelings during their sessions.
Results: A total of 16 participants consented and completed the study. The mean age of the participants was 43 (5.4) and the average years of experience was 20 (5). Fifty percent were male, 81% had bachelor's degree. The majority (62%) work in the musculoskeletal field, 19% neuromuscular, and 6.3% in each of pediatrics, cardiorespiratory and vestibular fields. The main emotions found to be related were condemning, self- conscious, praising and suffering emotions. Condemning emotions included feelings of hate, annoyed, ignore, agitated, disturbed and rude. The majority of condemning emotions were experienced when the patient was either being uncooperative, rude or non-compliant. Self-conscious emotions included embarrassment, moral distress, shame and guilt. Praising emotions were linked with positivity, gratitude and satisfaction. When therapists felt these emotions they were driven to do more. Suffering emotions were caused from situations not in the therapists control. They felt confused, frustrated, and unable to address some situations but therapists indicated that these emotions were not expressed as often as other emotions.
Conclusion: Physical therapists experience a wide range of emotions during their therapeutic sessions both positive and negative. While many negative emotions are experienced, praising emotions that are linked with positivity drive therapists to do more for their patients. For adequate patient care, a therapist needs to fully understand moral emotions which helps during the decision-making process while influencing both actions and behaviors. Further research is needed to determine how emotions are controlled by the therapist as well as how patient emotions influence the therapeutic session.

Keywords: Emotions, Feelings, physical therapists.

View Poster

PT-02

The Impact of COVID-19 Pandemic Stress on the Cognitive and Psychomotor Performance of Individuals Living in the State of Kuwait

Zainab Al-Omair, Amal Al-Ajmi, Moudhi Al-Otaibi, Shouq Al-Khabaz

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Introduction: The COVID-19 pandemic crisis created a global stressful environment that could have a long-lasting negative impact on the human population. Stress is known to have a significant impact on neurophysiological as well as psychological vital functions and may lead to chronic disease, a foggy brain and disturbed physical performance.

Objective: The aim of this pilot study is to investigate the impact of COVID-19 on selective cognitive and psychomotor function among a sample of the general population who lived in Kuwait during the pandemic period.

Results: A sample of 30 participants, drawn from an online questionnaire by using a snowball sampling technique, participated in the study. They consented to complete two cognitive tests, and two psychomotor tests. Depression, Anxiety, and Stress Scale (DASS-21) was used to assess their depression, anxiety, and stress levels, Montreal Cognitive Assessment test (MoCA) and Stroop Color and Word Test (SCWT) to assess their cognitive abilities, and Dual-task gait testing to assess their psychomotor abilities. The criteria of these participants included in the study is: residency in Kuwait, both male and female, and an age group of 18 – 70. Statistical analysis was done using SPSS. The p value is set as 0.05, $p < 0.05$ is considered significant. The correlation between the DASS-21 and the tests were deemed not significant as the p-values are all more than 0.05, which indicates strong evidence for the null hypothesis. Even though the results of the DASS-21 questionnaire showed psychological symptoms (depression 67.9%, anxiety 79.9%, and stress 53.2%).

Conclusion: The crisis of Covid-19 has a significant effect on all aspects of life, especially the
psychological aspect. The direct and indirect impact of the pandemic on the individuals living in Kuwait was clearly shown in the results of the DASS-21 that showed the psychological symptoms. On the other hand, unlike the findings from DASS-21, our pilot study and the result we got from MoCA, SCWT, and the Dual-task gait testing showed that the pandemic did not cause any cognitive and psychomotor effect. Hence the results of no correlation between DASS-21 and other tests.

Keywords: COVID-19, stress, cognitive, psychomotor, Kuwait

View Poster

PT-03

Telerehabilitation as an Alternative Approach for Physical Therapists Working in the MOH of Kuwait during COVID-19: Knowledge, Application, and Challenges

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INTRODUCTION

Physical therapy has an important role in patient rehabilitation. However, COVID- 19 pandemic has made significant impact on all health care providers including physical therapy practice. The World Confederation for Physical Therapy has suggested the implementation of telerehabilitation to provide physical therapists an alternative approach to the usual rehabilitation care.

METHODS

cross-sectional qualitative study. Sample: 42 physical therapists (39 females and 3 males) with age range 20 to 50 years from eight physical therapy departments participated in the study. Procedure: a survey was generated through google document and was sent to physical therapists who used telerehabilitation during the Covid-19 pandemic in Kuwait.

RESULTS

The majority of the participants were specialized in orthopaedics and had more than 15 years of experience. All of the participants have only used telerehabilitation during Covid-19 pandemic. The majority of the sessions were conducted from hospitals using video calls for patient's education. Most of the physical therapists are willing to use telerehabilitation in the future. The two most common barriers were patient education level and technical issues. The most challenging part in conducting telerehabilitation sessions was during assessment and the most challenging condition to treat was spinal cord injury.

CONCLUSION

This study shows that physical therapists in Kuwait were successful in adapting telerehabilitation into their patient management during Covid-19 pandemic. Using it with little experience indicates its significance and feasibility in the health care system in Kuwait. Increasing patient's awareness about the importance of telerehabilitation and getting technical help when needed can overcome some of the barriers that our participants faced during this experience. We recommend that telerehabilitation become a common practice in the physical therapy departments in Kuwait, not only during the pandemic, but also for other reasons where the patient is unable to come to the session due to bad weather or sickness of the patient or his/her caregiver.

KEYWORDS:
COVID-19 Pandemic, Physical therapy, Telerehabilitation.

View Poster

PT-04

Newly Applied Online Education for Health-Related Professions; Should It Be Encouraged After the Crisis?

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Background: Education during the pandemic has been challenging, and online education is considered the only method of learning currently.

Purpose: This study evaluates the impact of online education among the FAHS students using the Microsoft Teams platform and assesses students' preferences for the method of teaching in the future.

Methods: A descriptive study was conducted among FAHS students who belong to the 2018 batch or older batches, excluding freshman students (2020 batch) from the study. A Structured questionnaire was distributed among them online. It consisted of three sections, section A, the introduction of the topic and its objective, section B, simple demographic questions, and section C items drawn from different studies assessing the student's perception toward online education and their preferences to the method of teaching in the post-COVID-19 era.

An Ethical approval letter was obtained from the HSC ethics committee for student research.

Data were analyzed using SPSS statistical software using descriptive statistics and the nonparametric Spearman's rho test. Correlation at the level of 0.01 was considered statistically significant.

Results: A total of 282 students participated in the study. Resources accessibility, learning at one's own pace, and recording the meetings are advantages that most students agreed on. The internet connection, feedback, low motivational levels, and high-stress levels were reported. Regarding their preferences for the method of education in the future, most respondents agreed on going back to the traditional method. Some prefer blended learning, and few wanted online education to continue. Spearman's rho correlation test results indicate a positive association between the advantages of online learning and the desire to continue with it in the future. Also, a significant positive association between the disadvantages of online education and the preference of getting back to traditional learning was found.

Conclusion: The findings from this study imply the possibility of encouraging online education at the FAHS only as a second option, as the vast majority of students were in favor of going back to traditional methods of teaching after the pandemic.

Keywords: FAHS, COVID-19, Online Education.

View Poster

PT-05

The Prevalence of Depression, Anxiety, Stress, Insomnia and the Associated Factors Among Healthcare Workers in the State of Kuwait During the COVID-19 Pandemic

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Introduction: Many people around the world suffer from mental health disorders, and they have slowly become more prevalent in healthcare workers (HCWs) during the COVID-19 pandemic. To our knowledge, there were no previous studies done to explore the psychological effect of the pandemic on healthcare workers in the state of Kuwait.

Aims: The aims of the study were to explore the prevalence of depression, anxiety, stress, and insomnia in healthcare workers in the state of Kuwait during the COVID-19 pandemic, and to investigate the common factors that are associated with mental health disorders.

Methods: A cross sectional study was conducted among 361 HCWs working in governmental hospitals in the State of Kuwait. Two instruments were used in this study. The first is The Depression Anxiety Stress Scale (DASS-21), which measured the level of depression, anxiety, and stress. The second is the Insomnia Severity Index (ISI), which is a seven item self-report questionnaire that measured the severity of sleep disturbances.

Result: A total of 361 HCWs participated in the study, and 31 were excluded because they weren't working during the pandemic. The prevalence of depression, anxiety, stress, and insomnia were at moderate to high levels. Participant's years of experience, workout level, and family support during the pandemic were significantly associated with the all 4 mental health disorders. Age was significantly associated with anxiety, stress and insomnia only. Marital status and nationality of the participants were associated with insomnia. HCWs who worked more than one shift were more depressed, anxious, and stressed.

Conclusion:

HCWs in Kuwait who worked during the pandemic were at risk of mental health disorders. Therefore, it is extremely important to establish management and support programs to help them and to provide resources to reach optimal wellbeing. Mental health disorders are on the rise so it is crucial for policy and decision makers to implement and enhance awareness programs of common factors associated with mental health disorders.

Key words: PubMed was used as the main search engine, and the key words were "COVID-19 pandemic", "COVID-19 and mental health", and "COVID-19 and healthcare workers".

View Poster

PT-06

The Correlation of Muscular Pain and Stress in Kuwait University Students Undergoing Distance Learning during COVID-19 Pandemic

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Introduction

COVID-19 was declared to be a pandemic and started in Kuwait in March of 2020. Distance learning was applied due to the pandemic and the introduction of the new way of teaching and learning applied physical and psychological stress on students.

Objectives

To investigate the relationship between stress and pain among Kuwait University students undergoing distance learning during the COVID-19.

Subjects and methods

An online-based cross-sectional survey was distributed via different social media applications. The questionnaire consisted of 21 questions (demographics, name of faculty and year of profession, level of stress, pain level, type of pain, and relieving factors). The Participants were Kuwait University students from all faculties. Stress was assessed with the Perceived Stress Scale (PSS) and pain was assessed using the numeric rating scale (0-no pain to 10-severe pain).

Results

A total of 465 students participated in the survey. Over 77% of participants were aged between 17-21 years old, (88.19%) were female and (11.81%) were male. The time spent in front of the screen was more than 5 hours in 50% of participants, 3-5 hours in 35.44%, and 1-3 hours in 13.5% of participants. 176 students (38.5%) had a moderate level of stress whereas 281 students (61.5 %) had a high level of stress. 52.8% of students had moderate pain, 33.3% had severe pain and 8.4% had mild pain. There was a significant correlation between pain and stress (P-value <0.001). Among students who reported pain during online classes, 71.17% reported neck pain, 50.11% had shoulder pain, 34.55% had upper limb pain, 77.35% had back pain, 21.28% reported lower limb pain, and only 4.81 % had no pain.

Conclusion

We found that most students using online platforms during the pandemic are suffering from either moderate or high stress levels according. This stress is correlated strongly with musculoskeletal pain and discomfort in different areas of the body. High stress was related to severe pain.

View Poster

Radiologic Sciences (RS)

Awarded Posters RS

No.	Student Name	Title
1st	Aisha Alobaid Mudhawi Alotaibi Aseel Alshammari	Radiation dose and image quality with and without anti-scatter grid for different breast thicknesses and compositions in detecting breast lesions using full-field Digital mammography: A phantom study (DR)
2nd	Eman Alzaid Ghadeer Alanazi Rahaf Alharbi	Effect of CT Image Acquisition Parameters on Quantitation in SPECT and PET Images (NM)
3rd	Deemah AlAjmi Reem Alzoabi	Evaluation of radiation dosimetry in prostate cancer patients receiving 177Lu-PSMA using OLINDA/EXM software (NM)

RS-01

Radiation dose and image quality with and without anti-scatter grid for different breast thicknesses and compositions in detecting breast lesions using full-field

Digital mammography: A phantom study

Aisha Alobaid[1], Mudhawi Alotaibi[1], & Aseel Alshammari[1]
Supervisor: Dr Akram Asbeutah[1]
[1]Department of Radiologic Sciences, Faculty of Allied Health Sciences, Kuwait University

INTRODUCTION
There are concerns about the introduction of post-processing capabilities and the widespread use of full-field digital mammography (FFDM) in the last decades on whether image quality is the same between grid and non-grid. Exposure factors such as kV, mAs, target/filter material, collimation, breast tissue thickness and composition, and use of anti-scatter grid are essential factors in controlling contrast resolution in FFDM. The aim of this study is to study the effect of different breast phantom thicknesses and compositions on image quality and entrance skin dose (ESD) and average glandular dose (AGD) with and without the use of anti-scatter grid in FFDM.

METHODS
The ESD and AGD together with image quality of 6 FFDM (cranio-caudal projection) of a tissue equivalent phantom were acquired using a GE Senographe Essential DM unit. Phantoms were used to simulate three different breast thicknesses and compositions. Tube potential, tube load, and target/filter combinations were selected using automatic exposure control (AEC). The images were obtained in the presence of the grid and then without the grid for each breast thickness and composition. Comparison was based on qualitative measurements of image quality by five senior technologist whom are specialized in mammography, namely contrast resolution. Mann-Whitney non-parametric test was used for analysis.

RESULTS
The radiation doses in terms of ESD and AGD were higher with a grid and as the breast thickness increases. The difference between grid and without grid use for 4, 5, and 6cm phantom breast thicknesses for ESD and AGD were 2.87 and 0.65, 3.53 and 0.71, and 4.22 and 0.81, respectively. Mann-Whitney test showed statistical significant difference for the radiation doses for grid and without grid use for each and between different phantom breast thicknesses (P=.035 for ESD and P=.014 for AGD). Also Mann-Whitney test showed no statistical significant difference in the visibility of different structures (P=1.00 for fibers and specks and P=.70 for the masses).

CONCLUSIONS
The non-grid images showed lower ESD and AGD than the images with anti-scatter grid. The image quality is comparable with and without the use of anti-scatter grid.

KEYWORDS: Breast imaging, digital mammography, image quality, radiation dose

View Poster

RS-02

Preparedness of Radiology Department in Kuwait Hospitals

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- ***Introduction:***

The ongoing outbreak of Coronavirus disease (SARS-CoV-2) was first discovered in Wuhan-China in 2019. The main purpose of this study is to review the preparedness of radiology departments in Kuwait hospitals, & minimise the probability of in-hospital transmission & keep health workers in a safe environment. In addition, provide a plan for post shutdown environment. Most radiology departments shifted from diagnostics to Radiology preparedness. It is a set of policies and procedures applicable to imaging departments designed to achieve sufficient capacity for continued operation during a health care emergency, support the care of patients with COVID-19, and maintain radiologic diagnostic and interventional support for the entirety of the hospital and health system.

- ***Methods:***

A checklist of pandemic response that measures for the radiology departments was prepared (Bien Peng Tan et el, 2020). The responses were measured in five public hospitals in Kuwait, which are: Adan, Mubarak, Amiri, Farwaniyah, & Sabah hospitals. Three independent researchers have recorded the responses, by visiting the site. Pivot tables & Radar graphs were produced for each section, using Microsoft Excel Version 16.46 (210210202).

- ***Results:***

The study has shown that the average results of the radiology departments preparedness responses range 65%-77%. Tables and graphs have been produced to draw a provision for the policies & procedures after shutdown. A comparison among the five main Kuwaiti hospitals is represented with using the radar chart.

- ***Conclusion:***

The findings suggest that staff protection should be considered. Novel protocols may be required to be crafted, & work processes be reviewed & refined to minimise any possibility of in-hospital infection transmission & achieve zero health care worker transmission to ensure safe environment for both patients & staff. Establishing Radiology department response workgroup in each radiology department in hospitals, is a necessary. Post shutdown plan should be prepared & ready to go for all radiology departments in the hospitals.

- ***Keywords:***

#COVID-19, #Radiology Department, #Kuwait

View Poster

RS-03

The Impact of COVID-19 Pandemic on Radiographers and Students Undergoing Clinical Rotation in the Kuwait Ministry of Health Hospitals

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Background:
Coronavirus disease 2019 (COVID-19) is an infection disease caused by a SARS- CoV-2 virus that triggers an acute respiratory syndrome. COVID-19 pandemic introduced global challenges with rapid spread, lockdown, and physical restrictions in place around the world. The pandemic introduced global challenges for healthcare professions. Radiographers are frontline healthcare professionals facing the COVID-19 pandemic as they work closely with positive and suspected COVID-19 patients daily to perform medical imaging. Accordingly, this led to increase in workload, increase in mental and psychological stress, anxiety, and emotional exhaustion. The aim of this study is to assess the impact of COVID-19 among radiographers and students undergoing clinical rotations in Ministry of Health (MOH) hospitals Kuwait.

Methods:
A survey containing 24 questions was conducted online using Google forms (https://docs.google.com/forms/) with a response time frame of two weeks. A total of 133 responses from radiographers (n= 84) and students (n=49) were collected and analysed with p-values <0.05 demonstrating statistical significance. Ethical approval was obtained from the HSC Ethics Committee for Student Research (project #17), and all the participants provided electronic informed consent for participation in the study

Results:
Respondents showed a great understanding of what is COVID-19 and how it transmitted. Responses indicated the need for more infection control training and more education on effective crisis management. An increase in workload, work related stress and psychological concerns was noted among radiographers and students. Respondents reported the fear of spreading the infection as their major stressor during the pandemic followed by the fear of getting the infection. The comparison between radiographers and students revealed a significant increase ($p<0.05$) in stress levels and in the need for a professional help among radiographers compared to students.

Conclusion:
This study indicated the key challenges that radiographers and students are facing during the COVID-19 outbreak. This research outcomes demonstrated the increase in psychological effects like burnout, stress, emotional exhaustion, anxiety and depression among radiographers and students during the pandemic. In addition to identifying the need for psychological support, infection control training, and risk management plans required for workers

Keywords: COVID-19, stress, radiographers, imaging, pandemic

View Poster

RS-04

Evaluation of radiation dosimetry in prostate cancer patients receiving 177Lu-PSMA using OLINDA/EXM software

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INTRODUCTION

Lutetium-177 PSMA (Prostate specific membrane antigen) represents a promising treatment, which is progressively arranged for individuals that have late stages of prostate cancer.Lutetium-177 PSMA is a form of radionuclide therapy that tend to destroy prostate cancer cells that have spread into parts of the body which is the goal of this therapy. **The aim** of this study is to evaluate radiation absorbed dose of the normal tissue organs and tumor cells using OLINDA as a dosimetry calculator. This will help us to optimize the dose of Lu177- PSMA to have the maximum effect on the cancerous tissue and the minimum impact on the normal tissues.

METHODS

Whole body images was done using Lu177-PSMA scans were acquired at 4, 24, and 72 h post injection. Region of interest (ROIs) were drawn on the critical organs and main tumor to calculate the geometric mean counts and the volume. Then, OLINDA/EXM software ,which stands for Organ Level Internal Dose Assessment/Exponential Modeling uses residence time to calculate absorbed dose per unit of administered activity.

RESULTS

mean whole-body reminder absorbed dose was 0.08 ± 0.02 mSv/MBq. the mean absorbed dose were 0.2 ± 0.2 & 0.14 ± 0.12 mSv/MBq For Rt.kidney and Lt.kidney respectively . 0.05 ± 0.02mSv/MBq was for the Liver, 0.45 ± 0.15 mSv/MBq for the bladder .
The lesions found in the patients body received a mean dose 1.8 ± 0.9 mSv/MBq (1 hr) , 2.2 ± 0.97 mSv/MBq (3 Hr) , 2.9 ± 1.4 mSv/MBq (24 hr) and 3.9 ± 2.0 mSv/MBq (72 hr)

CONCLUSION

177Lu-PSMA showed high, specific and rapid uptake in prostate cancer metastases. The long effective half-life in both, skeletal and soft tissue metastases, resulted in a high mean absorbed tumor dose uptake up to maximum specially kidneys, bone and lymph node metastases, respectively.

KEYWORDS:
Lu-177 PSMA , Prostate cancer , Absorbed dose

View Poster

RS-05

Effect of CT Image Acquisition Parameters on Quantitation in SPECT and PET Images

Eman Alzaid, Ghadeer Alanazi, Rahaf Alharbi
Supervisor: Dr. Ajit Brindhaban

Abstract:

Background: A combination between computed tomography (CT) and nuclear medicine imaging modalities positron emission tomography (PET) and single photon emission tomography (SPECT) add useful information that enhance image quality and has high impact on the quantitative information. The aim of this study is to investigate the effect of using different CT tube voltage settings on image quantification of SPECT/CT and PET/CT images, when CT scan is used for attenuation correction of photons.

Methods: In this study, a National Electrical Manufacturers Association (NEMA) phantom with spheres filled with radioactive material was imaged using a PET/CT and SPECT/CT scanners. Four CT images were obtained with kV values of 80. 100, 120, and 140 kV for attenuation correction (AC). All attenuation corrected images were reconstructed using standard parameters used for clinical imaging. GE Xeleris software was used to obtain the total count and uptake in each sphere by drawing region of interest. In PET images, the AW 4.2 software was used to calculate the standardized uptake value (SUV). The diameter of the spheres were measured using row profiles through each sphere in both PET and SPECT images. Statistical analysis was carried out using paired t-test for any effects of different CT acquisition parameters at $p < 0.05$ level.

Results:

In both SPECT and PET images, statistically significant ($p > 0.08$) differences were not observed in total counts, uptake, sphere diameter and SUV values when CT images acquired with different kV was used for attenuation correction. However, measured diameters of the spheres were underestimated by about 35% at all kV values of the CT images. the Recovery Coefficients were found to vary between 0.577 for 10 mm sphere and 0.757 for 37 mm sphere for PET images. The SUV values in PET varied between 5.0 for 10 mm sphere to 10.9 for 37 mm sphere. Measured and actual diameters had a linear relationship (R^2=0.9341).

Conclusion: The CT tube voltage did not have significant impact on quantification of information from PET & SPECT images when water was used as background tissue. Further study using different tissue like materials for background need to be done.

View Poster

RS-06

Impact of COVID-19 Pandemic in Nuclear Medicine Departments in Kuwait.

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INTRODUCTION
The corona virus (COVID-19) pandemic has changed the whole world. It magnificently impacted the healthcare systems in terms of work flow, the type of procedures, number of patients and working shifts. This study aims to evaluate the effects of COVID-19 pandemic on Nuclear Medicine (NM) departments strategies, roles and protocols in Kuwait.

METHODS
A questionnaire is designed for all NM professionals regarding the change in working patterns, practice, and their well-being.

RESULTS
There has been a decrease in the number of patients along with the implementations of some new precautionary rules and changes of work routine. Also, COVID-19 pandemic appeared to have a heavy impact on the mental well-being of employees.

CONCLUSION:
COVID-19 pandemic has a still going significant effect on the NM departments' strategies in Kuwait. Some new changes in NM procedures, and safety rules have been applied to prevent the spread of coronavirus infection among the staff, workers and patients during the pandemic.

KEYWORDS:
COVID-19,Nuclear Medicine, Precautions.

View Poster

RS-07

Investigation of metacarpal joints using Positron Emission Mammography (PEM)

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ABSTRACT

Positron emission tomography (PET) is the modality used for the detection of bone abnormality using 18-F Sodium Fluoride (NaF). It provides diagnostic information superior to that of 99mTc-MDP bone scans due to higher sensitivity. Positron emission mammography (PEM) can be used to evaluate small lesions in extremity bones and thus improves spatial resolution. .

Aim. The aim of this study was to determine the feasibility of the use of a positron emission mammography (PEM) scanner with ^{18}F-NaF for evaluating hand and assess the SUV value of ^{18}F-NaF in the joints of the hands from the healthy individuals.

Method: The patient cohort was comprised of 30 healthy volunteer patients referred for oncology staging with ^{18}F-NaF PET-CT at Kuwait Cancer Control Center (KCCC) with no sign of complain in the hands were agreed for dedicated hand views after the informed consent (mean age 51.6±13.4, females and males). First, whole body PET bone imaging was performed using 18F-NAF after that images of the hands were taken using PEM for 10 minutes. Region of interests (ROIs) were drawn on various joints of right and left hand. SUV mean and SUV max will be evaluated in normal patients**.**

Result: Normal values of SUVmean and SUVmax for 16 joints in the right and left hand were determined.

Conclusion: PEM has high spatial resolution and may help to play a role in the imaging of small bones or joints, such as those of the hands. The potential use may be evaluating patient with Rheumatoid Arthritis and for their post treatment response assessment.

View Poster

RS-08

The impact of effective communication between Diagnostic Radiologic Sciences students and patient on the examination outcome during Covid-19 pandemic.

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INTRODUCTION

Effective communication between diagnostic radiologic sciences students and the patients has an important role in obtaining high quality examination in medical imaging. During Covid-19 pandemic, applying “physical distancing,” including wearing a mask should be practiced reducing the spread of COVID-19. Increasing the distance between the student and the patient is required in order to maintain infection control. However, this may affect the examination outcome which requires a specific patient positioning and hands palpation to the body parts in order to produce a high image quality without error and to avoid unnecessary re-examination, including exposing the patient to high radiation dose. The **aim** of this study is to measure the quality of effective communication between the diagnostic radiologic sciences student and the patient during Covid-19 pandemic.

METHODS

The questionnaire was distributed online on 60 male and female diagnostic radiologic sciences students of third and fourth year at Kuwait University using Microsoft Forms program for an 8-week data collection period.

RESULTS

Fifty out of 60 diagnostic radiologic sciences students completed the questionnaire. The results showed statistically significant difference in examination outcomes before and after Covid-19 pandemic. The patient positioning error was found the most cause of retaking the image. The majority of students believe that rate of the examination repetition related inversely to communication with patients.

CONCLUSION

Our research demonstrates the importance of effective communication and its impact on patient perceptions of the diagnostic radiologic sciences students and their abilities through the pandemic.

KEYWORDS:
Effective communication, Covid-19 pandemic, Positioning error

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