



جامعة الكويت
KUWAIT UNIVERSITY



FACULTY OF ALLIED HEALTH SCIENCES

16th Scientific Poster Day

2023



**Under the Patronage of
President of
Kuwait University**



**Professor
Fahad AlDubais**

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Vice President for Research



Professor Othman Alkhadher

Prof. Alkhadher is a lecturer at the Department of Psychology, College of Social Sciences, at Kuwait University. He is an organizational psychologist, and Associate Fellow of the British Psychological Society (AFBPsS), awarded in recognition of several years' experience and contribution to the field of psychology. He got his PhD from Nottingham University-England 1994. He Published more than 50 articles and 8 books. Professor Alkhadher received the Distinguished Researcher Award 2021, and the Excellent Teaching Award 2020 from Kuwait University; And the Scientific Production Prize from Kuwait Foundation for Advancement of Sciences 2015; and two awards from the National Council for Culture Arts and Letters-Kuwait, 2009 and 2013. He is an active member of American Psychological Association (APA), and the British Psychological Society (BPS), APA's Society for Organizational and Industrial Psychology.

Dean's Message



In the past decade, there has been a significant rise in the demand for allied health professionals worldwide. This increase is a direct result of the growing awareness among people about the importance of healthcare and preventive measures. The only way to meet this demand is by producing a skilled workforce, which can only be achieved by quality education and training that is based on research-backed insights and practices.

Research in health sciences plays a major role in shaping the curriculum, improving teaching methods, and enhancing clinical practices. With advancements in technology and medical techniques, there is also an increasing need for research that can address complex healthcare issues. This research can only happen in academic settings, where students and faculty collaborate to produce and disseminate knowledge.

This 16th Scientific Poster Day that we are participating in is a testament to the fact that we are committed to advancing the field of health and rehabilitation sciences through scientific research. This conference provides a platform for our students to showcase their research projects and share their findings. It is through such collaborative efforts that we can address significant healthcare issues of our times.

Dean's Message



As a faculty, we are committed to providing our students with the best education and training possible. However, we also recognize that it is not enough to only impart knowledge, we must also encourage our students to be actively engaged in research activities that can help them develop real-world problem-solving skills. By providing opportunities for students to participate in research projects, we aim to produce professionals who are not only knowledgeable, but also innovative and research oriented.

In conclusion, I would like to emphasize the importance of scientific research in advancing the field of health sciences. As future professionals, you have a critical role to play in the development of the field. I urge you all to keep an open mind, be curious, and actively participate in research activities. With your hard work and dedication, I am confident that you will make significant contributions to your field and help us build a healthier future for all. I wish you all the best for your future endeavors.

Mohammed Sh. Nadar

Vice Dean's Message



Greetings!

The Scientific Research Poster Day is conducted annually to showcase the achievements of our students and recognize the mentorship and encouragement that inspires these students to do their best.

As the Vice Dean of Research & Postgraduate Studies, it gives me great pleasure to welcome you all to the 16th Scientific Poster Day hosted by the Faculty of Allied Health Sciences.

This event offers students the chance to share their exciting work, to pitch their ideas, present their findings, and receive constructive feedback from those with different perspectives, giving them a glimpse into what they can expect in the real world. And thus, as a community, get to know each other better and create networks of value.

The Faculty of Allied Health Sciences takes this event as an opportunity to celebrate the collective achievements and recognize the hard work of our students and faculty. Please accept my heartfelt gratitude to all of you who work with our incredible students and help them reach their goals.

At this opportunity, let me thank the Dean of the Faculty, the Organizing Committee members of the 16th Faculty of Allied Health Sciences Scientific Poster Day, the Scientific Committee members, the Faculty members, the support staff, and the Kuwait University Administration for making this year's event a success.

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

Best Regards,

R. Al-Awadhi

Dr. Rana Al-Awadhi

Vice Dean for Research & Postgraduate Studies

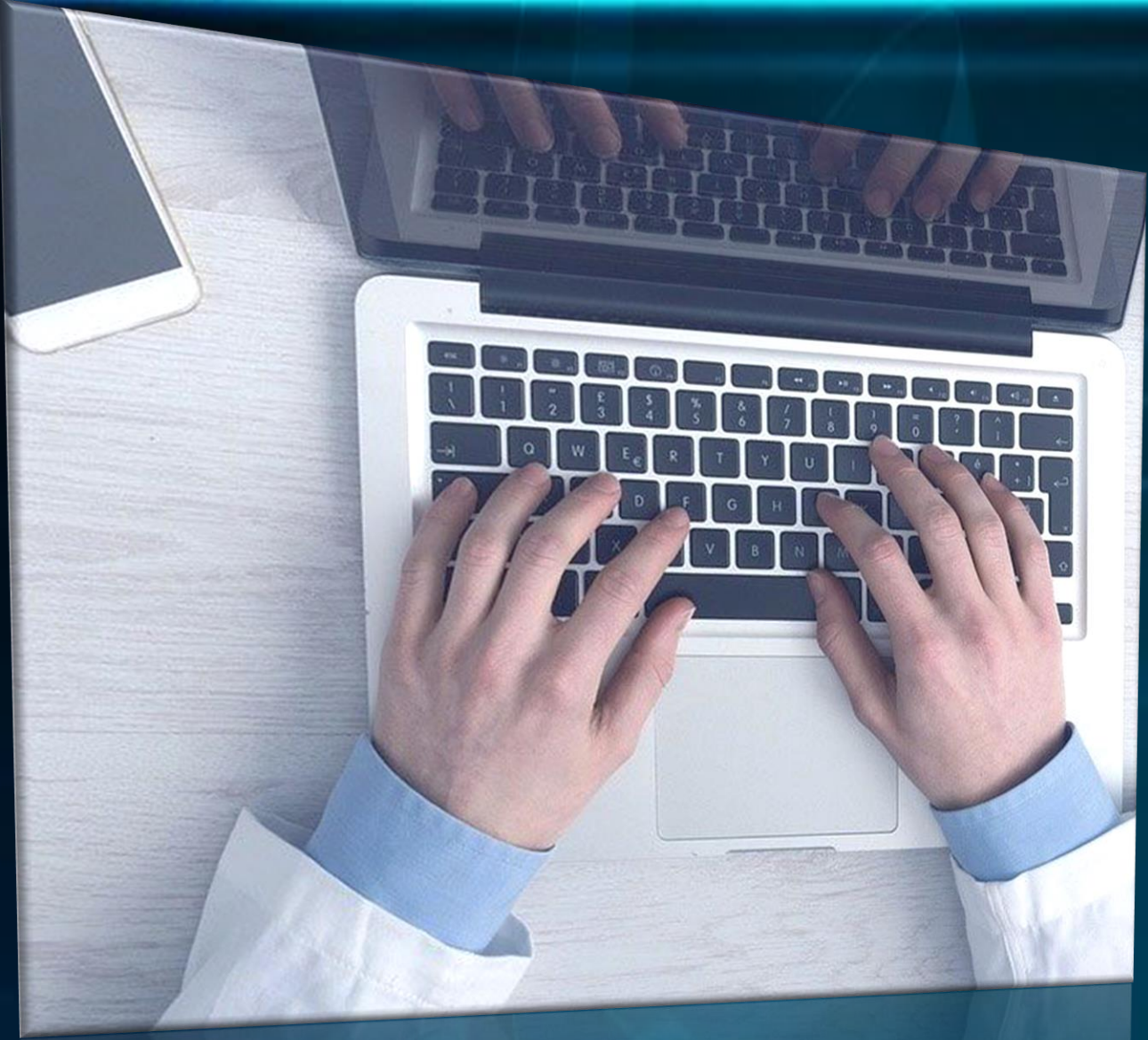
Faculty of Allied Health Sciences

Organising Committee

Member	Department
Dr. Rana AlAwadhi	Vice Dean for Research and Postgraduate Studies
Dr. Elham AlDoseri	HIIM
Dr. Nouf AlAjmi	MLS
Dr. Fodha Musaed	OT
Ms. Hanadi AlHumaidi	HIIM
Mr. Emad AlKhawaled	Faculty Services Manager
Ms. Elham AlEnzi	Public Relations
Eng. Ashwaq Derie	IT

The background is a dark blue gradient with a central horizontal band of a slightly lighter, greyish-blue. Faint, translucent outlines of plant-like structures, possibly leaves or petals, are scattered across the background, particularly in the upper and lower quadrants. The overall aesthetic is clean and modern.


Abstracts



Health Informatics & Information Management (HIIM)



HIIM Awarded Posters

	No.	Name	Title
	HIIM-1	Bshayer AlShammari	<u>The Effects of Online Health Information Seeking Before a Consultation of patients</u>

The Effects of Online Health Information Seeking Before a Consultation of patients

Bshayer AlShammari, Supervised by Dr. Elham AlDousari
Health Informatics & Information Management Department
Faculty of Allied Health Sciences

Abstract

Background:

The internet has now become a part of human life and is constantly changing people's way and view of life . Today, with the increasing popularity of online health information (OHI) , it has been found that seeking online health information before a consultation of patient's can affect the patient's feelings and behaviors .

Objectives:

This study aims to systematically investigate the impact online health information seeking behavior before a consultation on the patient's .

Methods:

An online questionnaire was distributed to investigate the effects of online health information seeking behavior before a consultation of a patient . The online questionnaire targets patient's with the age groups from 18 to 60 years and above and includes demographical and behavioral questions to study the patient's perspectives regarding OHI seeking . SPSS, frequencies and percentage's were used in this study .

Results:

The main findings showed that 82.95% used Google to seek online health information, while 23.26% used medical libraries , 6.98% used social media apps and 3.1% used other different ways to seek HIO . Results also showed that 81.4% of the patient's agreed that online health information seeking before a consultation affects their view of their medical condition , while 11.63% remained neutral and 6.98% disagreed .

Conclusion:

Online health information seeking before a consultation has an impact on patients' psychology and behavior . Increasing patients' behavior of online health information seeking lead patients' to expand their knowledge . However, it also showed that excessive searching for health information online before a consultation can trigger patient's anxiety and lead to unnecessary concerns regarding their medical conditions . The findings of this study may help health care professionals to better understand how to communicate with their patients through the online health information and to learn how to increase patients satisfaction in seeking OHI .

Keywords:

Online health information; online health seeking; health information seeking.

View

Poster

Social Media and College Student Risk Behaviours

Rawan Alsharaidah

Supervised by Dr. Elham Aldousari

¹Health Informatics and Information Management /Faculty of Allied Health Sciences, Kuwait University

INTRODUCTION

With the vast use of social media by many people on daily basis, students are affected by it. Whether this effect is positive, or negative is subject to analysis by many studies. One of the major downsides of using social media is that students waste a lot of time going through the various social media platforms; time that could have been used for studying. However, social media has a several benefits such as increasing knowledge and discovering new aspects in the world. This study investigates the positive and negative impact of social media on college students' risky behaviours based on a survey of 100 students in the Faculty of Allied Health Sciences at Kuwait University.

METHODS

An online questionnaire was conducted to collect the data. All participants used social media. The questionnaire also collected information on demographic characteristics, number and frequency of used social media , type of content and how it is seen, their effects on academic level or job performance , discussion and participation on social media. The questionnaire was administered using google forms and was filled out anonymously. Data collection started after ethical approval is obtained from the review board of the Health Science Center. Statistical analysis was done using SPSS V.26.

RESULTS

The results showed that participants between the ages of 18 and 24 were more likely to use social media than others for the purpose of the study. Moreover, most of the participants used a social media at night. Also, male participants were highly significant in searching about entertainment and entertainment content comparing to female (being 9 females and 12 males)($P > 0.05$). Whereas female participants were significantly higher in searching about fashion and new product comparing to male ($p > 0.05$) (being 36 females and 2 males) . In conclusion, the excessive use of social media could be a potential reason for decreasing students educational or academic level. Moreover, excessive time of using social media could affect student's behaviours either in positive or negative way. As well as social media could affect student's physical and mental health.

CONCLUSION

Further studies are needed to provide a clear description of the impact of using the social media on the behaviours, time being and educational level of college students.

KEYWORDS:

Social media, Time management, Behaviour

View




Poster



Medical Laboratory Sciences (MLS)



MLS Awarded Posters

No.	Name	Title
 MLS-31	Retaj Hayat	<u>Serum IL-33 as an Early Biomarker of Liver Damage in Diabetic Patients</u>
 MLS-11	Hajar Khedher	<u>IL-33 as a biomarker of kidney disease in Type 2 diabetic patients</u>
 MLS-34	Danah Alchaar Asmaa Alrumaihi Amal Alhendi Dalal Alsadrah Teabah Alenezi	<u>Chronic Hydrogen Sulfide Donor and Exercise enhance activation of Hippocampal Neurogenesis process in Streptozotocin-Induced Diabetic Rats</u>

Hospital Water Supply: An Undeclared Source of Antimicrobial Spread

Nora AlFarhan, Norya Almaraghi

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

INTRODUCTION

Antimicrobial resistant (AR) bacteria could be acquired from drinking water sources facilitating its transmission and potentially causing morbidity and mortality. Studies provided evidence of transmission via water related medical devices and hospital toiletries such as dental unites, catheters, ventilators, humidifiers, haemodialysis units, sinks, toilets, showers, bathtubs, and ice machines. Nevertheless, with evidence of antimicrobial resistance genes.

METHODS

Water samples were collected from 7 hospitals in Kuwait, identified with Vitek II system and tested for their antimicrobial susceptibility towards different classes of antimicrobial agents using disc diffusion methods.

RESULTS

Only three samples did not provide any growth. Different organisms were isolated from different hospitals; *Klebsiella oxytoca* (*K. oxytoca*), *Staphylococcus warneri* (*staph. warneri*), *Staphylococcus hominis* (*staph. hominis*), *Staphylococcus aureus* (*staph. aureus*). With highest resistant profile was seen in the isolate from Amiri hospital then the sample collected from water sources of Mubarak hospital. Showing resistance towards more than 3 different classes of antimicrobial agents and indicator of possible Extended-spectrum beta-lactamases production. Interestingly, resistance profiles were variable, and no certain pattern of resistance was found.

CONCLUSION

Previously, it was thought that the upper hand playing a role in the spread of AR bacteria is the misuse of antimicrobial agents. However, this study within hands defines new sources of AR bacteria. Proper hospital water sources management and serious control measures should restrict further spread and probably reducing mortality and morbidity. Routine investigation of water supply maps and sources for evidence AR bacteria with defining if they play any role in hospital outbreaks by performance of genetic studies should be performed.

KEYWORDS:

Antimicrobial Spread, Water Supply, Hospitals

View

Poster

ABO incompatible in allogenic stem cell transplantation

Kawther Mostafa Alkhulaifi and Dr.Reem Ameen

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

Background : Stem cell transplantation may be a good choice for patients with blood and bone marrow disorders. The success of stem cell transplant depends mainly on human leukocyte antigen (HLA) matching but also ABO compatibility, because incompatibility may effect on the transplant process negatively. Aim: to correlate the effect of stem cell incompatibility with outcome of the procedure.

Methods : the data of 108 patients from the stem cell transplantation at Bahbahani hospital with mean age 30.497 between the age of (3 to 65) . Patients were under observation Pre and post transplantation and we recorded any complication and any events happen to the patients

Results: ABO compatibility: 58 patients out of 108 are ABO compatible. Five patients out of 108 were bidirectional. Twelve patients had minor incompatibility and 15 patients had major incompatibility, 84 patients were HLA matched and 15 patients were haploidentical . For the diagnosis the majority of the patients had AML then ALL. We also measured the average engraftment days for ABO com and ABOi and it was the same and there was no difference.

Discussion: After comparing all the result, the results shows that ABO incompatibility doesn't effect in stem cell translation, and in the hospital ABOi and ABO com patients are treated the same. Neither ABO incompatibility causes GVHD nor lower overall survival.

Conclusion : There no significant evidence shows that ABO incompatible effect on stem cell transplantation.

HLA :Human leukocyte anti gene, ABOcom: ABO compatible, ABOi: ABO incompatible, GVHD: graft versus host antigene , AML: acute myeloid leukemia, ALL: acute lymphoid leukemia

Keywords:

Stem cell transplantation

ABO incompatibility

View

Poster

Exploring the level of serum biomarkers among breast cancer subtypes

Lolwah Alyahyouth¹ and Danah Alqallaf¹

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

INTRODUCTION

Breast cancer is the number one cause of mortality among women worldwide. About 39.8% of newly diagnosed cases of breast cancer have been reported yearly in Kuwait. Previously, some studies showed a relationship between serum biomarkers CEA and CA15.3 with clinicopathological parameters such as age, tumor type, pathology of tumor and grade of tumors as well as the hormonal receptor status and the molecular subtype of breast cancer. By identifying the subtype of breast cancer, a better therapy can be achieved. However, due to the conflicting results being reported, the utility of measuring the levels of CEA and CA15.3 remains controversial. Therefore, this study aims to examine the variations in the preoperative serum levels of CEA and CA15.3 tumor markers concerning the expression status of hormonal and HER2 receptors.

METHODS

The records of 68 female patients diagnosed with breast cancer at the Kuwait Cancer Control Center (KCCC) between 2017 and 2019 were recruited retrospectively. Cut-off values of 5 ng/ml and 25 U/ml were used for CEA and CA15.3, retrospectively. Statistical analyses were performed using SPSS to correlate preoperative CEA and CA15.3 serum levels, BC molecular subtypes, and IHC factors.

RESULTS

In relation to the ER, PR, and HER2 expression status, it was revealed that preoperative serum levels of CA15.3 biomarker was the only serum marker that was significantly associated with ER expression status (p -value of 0.033) but not with both PR and HER2 status ($p = 0.163, 0.835$, respectively). No significant differences in the serum levels of CA15.3 among the different molecular subtypes of breast cancer ($p = 0.319$).

CONCLUSION

No significant difference was found between the molecular subtypes of breast cancer concerning the serum levels of biomarkers: however, we found that all tumors expressing ER had high levels of CA15.3 biomarkers. This enables CA15.3 to be used as a tool to predict some molecular subtypes, including luminal A and luminal B subtypes.

KEYWORDS:

Breast cancer, serum biomarkers, CA15.3, ER

View

Poster

Review of cryoprecipitate use in Kuwait

Kadhem Mayoof¹, Dalal Almuaili¹

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

Introduction: Cryoprecipitate is a blood product derived from FFP, and it contains high concentration of coagulation factors including fibrinogen, factor VIII and factor XIII. It is used to treat haemophilia A, hypofibrinogenaemia, acquired coagulopathy, Uremic Bleeding, Van Willebrand Disease, Patients with Factor XIII deficiency.

Methods: We conducted a retrospective study. Patients who received cryoprecipitate transfusion in Al-Amiri Hospital between 2018 to 2023 were included. The total number of patients included was 49.

Results: We found the most common indication for cryoprecipitate use was in cases of CABG patients (55%). This was followed by 10% for aortic dissection patients and 4% for bleeding. The remaining 31% was distributed among several other indications, none of which accounted for more than 2% individually.

Conclusion: Cryoprecipitate is an effective treatment for patients undergoing CABG, aortic dissection surgeries and patients with obstructive jaundice and bleeding. Our findings contradict our hypothesis that clinical care takers are not necessarily up to date with the latest and safest recommendations for the use of cryoprecipitate. There is a need for a study to compare cryoprecipitate in management of cardiac surgery, bleeding and compare it with the available recommendation.

Keywords: *Cryoprecipitate, Cryo, Coagulation Factors*

View

Poster

Multiple Myeloma and Treatment with Autologous Stem Cell Transplantation

Anfal Alenezi¹, Reem Ameen¹

¹Department of Medical Laboratory science, Faculty of Allied Health Sciences, Kuwait University.

Introduction:

Multiple myeloma (MM) is a biologically heterogeneous disease. MM is the second most common haematological malignancy after non-Hodgkin lymphoma. MM can be diagnosed by several tests such as, serum protein electrophoresis (SPEP), serum immunofixation (SIFE), X-rays, magnetic resonance imaging (MRI) and many. Autologous stem cell transplantation (ASCT) is the option for treatment of MM. Responding to the treatment is a critical stage in MM patients. Therefore, this study aimed to evaluate the responding to ASCT in MM patients, the incidence of MM in male and female, and summarize different characteristics in MM.

Methods:

This was a retrospective study of a patients with Multiple myeloma and was from Yacob Behbehani Center for Bone Marrow Transplant and Specialized Laboratories in Kuwait, with variety of a total of 36 multiple myeloma samples. The data in the study wase from 2019 to 2023. The statistical analysis done by using Microsoft Excel and type of paragraphs used was 2-D (line). Statistical analysis was preformed based on age, gender, ethnicity, clinical condition, immunoglobulins pre-treatment, and immunoglobulins post-treatment in each cycle. Individuals personal information is placed in the study as anonymous, and the patients named as numbers.

Results:

A total of n=36 samples of MM were revealed that average of age was 56 years old, male (69%) more than female (31%), Asians (81%) more than Africans (19%), 33% of patients have hypertension, 22% have diabetes, 25% have dyslipidaemia, and immunoglobulins pre-treatment levels were high in IgG & IgA and slightly high in IgM, and immunoglobulins post-treatment levels were decreased in IgG & IgA and slightly increased in IgM.

Conclusion:

Multiple myeloma IgG type is higher than IgA type and IgG, IgA and IgM levels were decreased after treatment indicate that patients were responded to the treatment ASCT. The elderly people and males can be at high risk of developing MM. And there is no research yet that can improve that if there is a direct or indirect relationship between ethnicity and multiple myeloma. MM can increase the incidence the developing hypertension, diabetes, and dyslipidaemia.

Keywords:

Multiple Myeloma, stem cells, response to therapy.

View

Poster

Is the New Trend of Environment-Friendly Reusable Coffee Cups Health-Friendly as Well?

Salma Alzufairi, Dr. Norya AlMaraghi,

Department of medical laboratory science, Faculty of Allied Health Science, Kuwait university

Background:

An annual increase in coffee consumption was noted by the International Coffee organization. With the new trends of eco-friendly means such as using reusable coffee cups. Yet, paucity of data regarding bacterial contamination of coffee lids and the health implications it poses. This field of research is a gold mine to be unveiled as contamination plays a significant role in transferring pathogenic bacteria which may impose a health risk. Especially, if the contaminating bacteria is antimicrobial resistant. **Objective:** To compare between the use of disposable coffee cups with environment-friendly reusable coffee cups in terms of microbial contamination.

Methods:

Twelve different coffee houses were targeted for this study. From each coffee shop two swabs were provided: one from the cover of a disposable coffee cup and the other from the reusable coffee cups. Isolate identification was performed by Vitek II system with providing Antimicrobial Susceptibility Testing (AST). Additionally, disc diffusion was made for resistant strains.

Results: Microorganisms isolated from both samples (disposable and reusable coffee lids) were *Acinetobacter heomolyticus*, *Aeromonsa*, *Bacillus sublzili*, *Pantoae* spp., *Pseudomonas luteola*, *Sphingomonas paucimobilis*, and *Staphylococcus pasteuri*. The most common microorganism isolated from reusable coffee lids was *Acinetobacter haemolyticus* 6 (50%) from Reusable cups and *Aeromonas* 6 (50%) from disposable cups. Overall, disposable coffee lids showed growth for two types of bacteria, whilst reusable coffee lids showed growth for different types of bacteria. Interestingly, despite the sensitivity of all microorganisms reported in this study towards all antimicrobial agents tested, the only strain reported was *Sphingomonas paucimobilis*.

was resistant to colistin (polymixins family). **Discussion:** The main difficulty faced is the lack of reports to compare the microbial environment reported with previous studies in literature. Evidently, eco-friendly reusable cups may be friendly to the environment but an enemy to public health. Microorganisms harboring these cups are considered as health-threats and preventative measures should be taken to prevent their spread.

Conclusion:

Currently, absence of antimicrobial resistance of the reported strains does not rule out future gain of resistance and further dissemination of antimicrobial resistance in community. The novelty of this field is worth future investigation with larger sample size and more resources.

View

Poster

Cancer cases trends following the onset of the COVID-19 pandemic in Kuwait.

Eidah (Alazemi)¹ and Maisaa (Alwohhaib)¹

1&1 Department of Medical Laboratory Sciences, Faculty of Allied Health, Kuwait university.

Background: Covid-19 had an impact on all aspects, especially the medical aspect. During the pandemic people with chronic diseases or other diseases are afraid to go to the hospitals so the severity of the disease increased, and their life became at risk. Cancer was one of those diseases where the numbers of cancer cases increased during and after the pandemic. Cancer risk factors are stress, unhealthy behaviors and the exposure to cancer causing factors like radiation and so on.

Aim: This study focused on three types of cancer, which are breast, thyroid, and pancreatic.

Methods: The data collected from Mubarak Al Kabeer hospital was to investigate the effect of Covid-19 on cancer patients.

Results: The results show that there was an increase in the female Pancreatic cancer cases and the thyroid cancer cases of both sexes the year after the pandemic. The increase was around the ages of forty and sixty. It could be due to several reasons.

Discussion and conclusion: The causes of this elevation in the number of cancer cases are like being unable to reach the hospital in an early stage due to the pandemic or the stress and anxiety caused by the lockdown and the fear of being unable to go back to normal life. Similar studies were done in various parts of the world. Accordingly, this study investigated the trends of cancer cases in Kuwait.

Key words:

COVID-19, Pancreatic cancer, breast cancer, thyroid cancer.

View

Poster

The Prevalence of *Staphylococcus aureus* Nasal Colonization in Kuwaiti Patients with Eczema

Ftoon Almutairi¹ and Yasmine Alshammari¹

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

INTRODUCTION: Atopic Dermatitis (AD), generally known as eczema, is one of the most widespread inflammatory skin conditions in the world. The most recent study on the prevalence of AD in Kuwait was estimated to be 20%. AD is clinically characterized by pruritis, xerosis, and eczematous lesions. *Staphylococcus aureus* (*S. aureus*) colonization is believed to be an environmental component that both contributes to and worsens AD. A meta-analysis of 95 observational studies on the colonization of *S. aureus* in AD patients found 62% nasal colonization, 70% of lesional skin colonization, and 39% of non-lesional skin colonization. Many studies have implied that *S. aureus* nasal colonization is a source of recurrent skin colonization and subsequent lesion development.

METHODS: Clinical specimens were collected from 8 Kuwaiti outpatients diagnosed with AD in Abdulkareem Al Saed center for Dermatology. All patients were above 18 years of age. Specimens were collected from both anterior nares (nose) and skin lesion using sterile cotton swabs (total of 18 clinical samples). Swabs were inoculated onto mannitol salt agar (MSA) agar plates and incubated at 37° for 48 hours. Presumptive *S. aureus* colonies were picked up and sub-cultured for purification. All presumptive *S. aureus* colonies were identified by colony morphology and oxidase test.

RESULTS: Based on both colony morphology and oxidase, presumptive *S. aureus* colonies were detected in the nares of 4 AD patients. Only one patient had both nasal and skin colonization. We cannot guarantee that these cultures were of *S. aureus* origin.

CONCLUSION: Definitive conclusions cannot be drawn from this study for many reasons. First, only two methods were used to identify *S. aureus*. Secondly, confirmation of *S. aureus* isolates can only be done with genetic testing. The study should be repeated with additional reagents and genetic testing in order to confirm *S. aureus* isolation from clinical swabs.

Key words:

Atopic dermatitis (AD) , *Staphylococcus aureus* (*S. aureus*), mannitol salt agar (MSA)

View

Poster

Do contaminated ice machines pose a possible health risk to consumers?

Reem Alshammari¹ and Dr. Ahmad Alhasan²

1, 2 Department of Medical Laboratory sciences, Faculty of Allied Health Science, Kuwait University, Kuwait

Background: The consumption of iced beverages is widespread among different food outlets, although its safety for human consumption remains unclear. Due to the fact that added ice cubes often melt, and are directly ingested when consumed, they should be of the same high quality as water that is consumed on a daily basis. Due to the potential health risks associated with contamination of ice cubes with pathogenic bacteria.

Aim: the study was designed to analyze the presence of bacteria and investigate the efficacy and quality of ice cubes. This included the hygiene of the ice machines as well.

Method: A total of 16 samples were collected from ice machines located in different food outlets. Including restaurants, coffee shops, and supermarkets, as well as testing hospitals and home-made ice consumption. By utilizing different testing methods, such as growth on different broth and agar media and API system tests, we were able to identify three types of bacteria. **Results:** Results have revealed that *Pseudomonas aeruginosa*, *Escherichia coli* and *Staphylococcus aureus* are the most abundant bacteria in the ice produced by the machines. These results indicate unhygienic conditions regarding ice cubes used in beverages that may pose a health risk to consumers.

Conclusion: In conclusion, it is recommended to conduct a microbial contamination analysis of ice cubes as part of routine checks of hygiene standards and microbiological quality of ice machines. This is essential for ensuring good quality ice cubes for consumption. In order to determine the point of contamination in ice cubes, studies should be conducted at the level of production, packaging, and distribution as well as the handling and storing practices of ice cubes at various food outlets. Through such studies, people will be taught how to properly consume and handle ice. In addition, they will raise their awareness of the possibility that ice can host a number of pathogenic organisms.

Keywords: Ice water, Contamination, Bacteria, Pathogens, Health risk.

View

Poster

Potential exposure to pathogenic bacteria when using collage vending machines

Amal Al-Sulaili¹ and Ahmad AL-Hasan²

1,2 Department of Medical Laboratory Sciences, Faculty of Allied Health Sciences, Kuwait University, Kuwait

Background: With the ever-increasing speed of daily life, technology has helped offer us services that complement the fast-moving pace of modern life. Vending machines have been used by people to help gain access to a quick beverage or meal, not having to waste precious time waiting in lines. Vending machines are found almost everywhere these days, especially in public places. Many people used it without knowledge if they were clean or not. Some vending machines unfortunately don't seem to be cleaned as often as they should. This might put people at risk of exposure to harmful pathogenic bacteria, that can be transmitted from person to person via hand and can lead to serious infection.

Aim: The aim of this study to detect potentially pathogenic bacteria on collage vending machines and to detect the most affected components.

Methods: In our study, 4 different vending machines on the college campus were checked for the presence of bacteria on their surfaces. A total of 28 samples were collected during the study from the vending machines, and we were able to identify 28 strains of bacteria, using various methods such as growth on selective media, and API 20 E and API Staph testing.

Results: results have shown that *Staphylococcus aureus* and *Staphylococcus epidermidis* are the prominent bacteria in the component of vending machines.

Conclusion: in conclusion, it's recommended to regularly clean the surfaces of the vending machines daily, to help minimize the risk of transmission of potentially pathogenic bacteria. It is also recommended to users to wash their hands after touching the vending machines.

Keywords: Vending machine, Bacteria, Hygiene, Health risk, collage.

View

Poster

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IL-33 as a biomarker of kidney disease in Type 2 diabetic patients

Hajer Kheder and Yasmine Alshammari

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

Background: Type 2 Diabetes mellitus (T2DM) is a diverse metabolic condition characterized by hyperglycemia brought on by impaired insulin production, impaired insulin action, or both. Diabetic nephropathy, or diabetic kidney disease (DKD) is a serious microvascular complication affecting approximately 30% of T2DM patients. IL-33 is a cytokine that has shown a protective role against the development of T2DM. Therefore, the aim of this study was to investigate the relationship between serum IL-33 and kidney function in T2DM.

Material and method: The study cohort consisted of 80 patients diagnosed with T2DM. Circulating levels of IL-33 were analyzed in left-over serum samples obtained from primary care clinics using an IL-33 ELISA kit. Age, gender, diagnosis, and kidney function tests, were taken from the medical records. Laboratory test results that were used as assessment of kidney function included serum creatinine, serum urea, uric acid and estimated glomerular filtration rate (eGFR).

Results: The results showed IL-33 was negatively correlated with creatinine and urea in diabetic serum and there was no correlation between IL-33 and eGFR and uric acid.

Discussion: Our findings suggest that reduced levels of IL-33 might increase the risk of developing kidney complications as evident by negative correlations with kidney injury biomarkers found in this study.

Conclusion: IL-33 may play a protective role against kidney damage. Larger and more in-depth studies are needed to confirm these findings.

Keywords: Type 2 Diabetic mellitus, Interleukin-33, Chronic Kidney disease, Diabetic Kidney disease, Urea, Creatinine

View

Poster

Seroprevalence of *Toxocara canis* in Blood of Waste Collectors in Kuwait

Yasmeen Ruwaie¹, Anfal Yousif ¹

¹Department of Medical laboratory Sciences, Faculty of Allied Health Sciences, Kuwait University.

INTRODUCTION

Toxocariasis is a neglected zoonotic disease caused by helminthic *Toxocara* species. It has a worldwide distribution with variable prevalence rates and presents in humans as covert, visceral, ocular, and neural larval migrans. *Toxocara* parasite has various transmission routes, including oral ingestion of embryonated infective eggs in contaminated soil, food, or water and through direct contact with contaminated cats' and dogs' excreta. There is lack of studies that have reported human Toxocariasis in Kuwait, which limits the knowledge of the prevalence of human Toxocariasis in the region. In this study we aim to investigate the seroprevalence of Toxocariasis in waste collectors working in Kuwait and improve current public health policies in preventing the transmission of toxocariasis.

METHODS

Enzyme Linked Immunosorbent Assay was used to detect the presence of anti-*Toxocara* IgG antibodies in 90 serum samples obtained from waste collectors working in AL-Asimah and AL-Jahra governorates of Kuwait.

RESULTS

Anti-*Toxocara* IgG antibodies were detected in 22% of serum samples from waste collectors. There was no statistically significant difference between seropositive workers in AL-Asimah and AL-Jahra governorate. Most participants that tested positive were from Bangladesh (85%). Furthermore, recent travel history was not considered a significant factor in the seropositivity of participants in this study. Younger workers were significantly more likely to be seropositive than older workers.

CONCLUSION

As this is the first study to investigate the prevalence of *Toxocara* IgG in waste collectors working in Kuwait, we have found that approximately 1 in 5 workers have tested positive. Our findings have not found that recent travel history was associated with anti-*Toxocara* IgG seroconversion of waste collectors. These findings in waste collectors must take into consideration the concern of the growing issue of stray cats and dogs, which are the definitive host of *Toxocara* spp., and other risk factors in Kuwait that favor the parasite. Controlling toxocariasis transmission from its main source is important to prevent future mortality and morbidity. The findings of this study and future research in other populations in Kuwait will aid in improving public health prevention policies and help to limit the spread of the disease.

KEYWORDS:

Toxocara , Parasite , Toxocriasis

View

Poster

Non-alcoholic Fatty Liver Disease Among Patients at Al-Jahra'a Hospital /Kuwait

Maram Alsuwait¹, and Fatima Alyatama²

Department of Faculty of Allied Health Sciences, Kuwait University

INTRODUCTION

Liver disease is still one of the major health problems in the world. The liver controls most of the synthetic and metabolic functions in the body, thus, any damage to the liver can lead to critical consequences.

METHODS

In this retrospective study, the records of FibroScan and laboratory analysis were collected for patients suffering from liver disease, the subjects were divided as follows: group A1(n=12) diabetic with NAFLD, group A2 (n=11) diabetic with fatty liver, group B1(n=8) non specified NAFLD and group B2 (n=2) non specified with fatty.

RESULTS

No significant changes were observed for all liver function tests. The only significant difference was observed for creatine kinase (CK) with a significant increase in group B2; 98.8 ± 13.4 , $P = 0.05$ compared to 66.6 ± 10.1 for group A1. Furthermore, TG levels showed a significant ($P = 0.04$) difference between group A1 compared to group B1; 2.1 ± 0.1 and 2.6 ± 0.3 respectively, in addition, a significant increase ($P = 0.05$) in TG levels was observed in group B1 compared to group B2 with values of 2.6 ± 0.3 and 1 ± 0 , respectively. Further significant ($P = 0.03$) differences were observed in LDL levels between group B1 (1.9 ± 0.3) and group B2 (3.4 ± 0.1).

CONCLUSION

We conclude that most patients with fatty liver and NAFLD are diabetic. Thus, we recommend having a routine screening for diabetic patients by ultrasound and biochemical analysis, for the liver function and blood lipids. Consequently, future development of fatty liver and progression to NAFLD can be with the right precautions.

KEYWORDS

NAFLD, CK, TG, LDL

View

Poster

Beneficial Hepatic Changes in Type 1 Diabetic Mouse Pups Whose Mothers were Supplemented with Carnitine During Pregnancy

Fatmah Al-Rasheidi (Alrasheidi)¹, Chacko Mathew²

Department of Medical Laboratory Sciences/ Faculty of Allied Health Sciences, Kuwait University¹,
Department of Medical Laboratory Sciences/ Faculty of Allied Health Sciences, Kuwait University², Kuwait.

Introduction:

Diabetes mellitus is a serious global public health issue with rising incidence in both developing and developed countries. Non obese diabetes (NOD) mouse is a common experimental animal model used for the study of Type 1 diabetes. Carnitine is a water-soluble amino acid found in many cells of the body. It is produced endogenously from lysine and methionine. Carnitine storage and abnormalities in carnitine control can lead to several diseases— including hypoglycemia, heart disease, starvation, cirrhosis, and ageing—because of abnormalities in carnitine control. It is known that carnitine supplementation supports immunological function in diabetic patients.

Methods:

this study was carried out in NOD mice. In this study, NOD diabetic mouse pups whose mothers were supplemented with carnitine during pregnancy were used. The NOD mice pups were divided into 3 groups. They are mouse pups whose mothers were on a low carnitine diet during pregnancy (Group 1), those mothers on a low carnitine diet supplemented with 0.30mg/gm L-carnitine (Group 2), and those mothers on a low carnitine diet supplemented with 0.60mg/gm (Group 3). After the development of diabetes as determined by blood glucose analysis, the mouse pups were sacrificed and liver were removed and the hepatic changes were studied using Mayer`s Hematoxylin and Eosin, Periodic Acid Schiff`s, Masson Trichrome, and Reticulin staining methods.

Results:

NOD mouse pups whose mothers were given only low carnitine diet showed sever diabetic changes such as glycogen accumulation, lipid accumulation and inflammation in the hepatocyte cytoplasm. The histopathological data presented in this study shows that carnitine supplementation has alleviated the above-mentioned diabetic changes and improved the hepatic architecture as compared to the mouse pups whose mothers were not supplemented with carnitine in the low carnitine diet. It should be noted that supplementation with 0.30mg/gm L-carnitine supplementation showed higher improvement than 0.60mg/gm supplemented group.

Conclusion:

The results presented in this study show that L-carnitine supplementation at specific dose in the diet of pregnant NOD mothers had beneficial hepatic effects in their offspring. However, the amount of carnitine supplemented is important as higher carnitine dose may have adverse side effects.

Keyword: liver; diabetes; carnitine; NOD mice.

View

Poster

Food order effect on the glycemic index in non-diabetic individuals

Fatma Aldousari and Dr. Ghadir Jamal

Department of medical laboratory sciences, Faculty of allied health Sciences, Kuwait University, Kuwait.

INTRODUCTION

Previous studies have shown that nutrient order during a meal significantly affects postprandial glucose in type 2 diabetes, while its effects in non-diabetics have not been reported. Previous research stated that carbohydrate has the greatest effect other than macronutrients on postprandial glucose. The aim of this study is to examine glycemic index (GI) post-meal according to a specific meal order range between nondiabetic healthy individuals.

METHODS

A total of 10 nondiabetic participants were included in this study to assess their postprandial glycemic index by a specific meal order and precise calories. The three meals order are carbohydrate first (CF), protein and vegetables first (PVF), and vegetables first (VF). The entire procedure took three weeks, with one week between each meal. Blood was drawn by fingerstick glucose meter at 0 min (fasting), 30, 60, 90, 120, 150, and 180 after taking the meal.

RESULTS

Our results indicate that the baseline in the three meal categories was similar. The three categories show an elevation of postprandial I glucose at the first 30 and 60 min postprandial. The p-value of all categories was quite similar, CV= 0.006, PVF= 0.001, and VF= 0.001. The area under curve was higher in the PVF meal at 0.136 than in the CF at 0.302 and VF at 0.262.

Discussion: Our result showed that v variability in the GI. On the other hand, PVF along the lines with VP meal glucose concentrations were quite stable and in better order compared to the CF meal. This actively demonstrates that eating vegetables or proteins first reduces the risk of a glucose spike.

CONCLUSION: The findings of this study reveal that better choices of food order impact on glycemic index in non-diabetics and comparing them together also exhibited that carbohydrates were the main determinant of elevated postprandial glucose levels and glycemic index. The perfect meal order is a simple and helpful way to prevent and manage diabetes and other diseases.

KEYWORDS:

Glycemic index, postprandial glucose, food order

View

Poster

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Isolation and purification of phage from environmental samples in Kuwait

Safiya Alhajri, Mariam Albahrani

Department of medical laboratory sciences/ Faculty of Allied Health Science, Kuwait University

Background: Bacteriophage is bacterial virus that has drawn considerable attention in the field of medicine as a solution for multi drug resistant bacteria. Bacteriophage can be used as an alternative or synergistically with antibiotics as antimicrobial agent. In this study, we isolated bacteriophages from environmental samples. This was achieved by sample enrichment, isolation, and concentration bacteriophage using of isolated PEG/NaCl precipitation. Then, the double agar layer was applied, which was further modified by the addition of calcium chloride to the soft agar layer.

Method: The phage extraction method used consists of sample collection, bacteriophage amplification, isolation, and plating. The samples were collected from sewage water and sea water in polluted areas and filtered. Then the phage in the samples was amplified in *E.coli* and cultured overnight. Then the phage was isolated by centrifugation, filtered, and plated after inoculation with the host bacteria. The method was then modified to optimize the extraction by using the double layer agar technique with the addition of calcium chloride to the soft layer agar. The phage was also concentrated by precipitation with PEG/NaCl and ultracentrifugation.

Results: Initially, the single layer agar method was used. Some phage activity was observed in the sewage sample. Thus, further modification for the isolation and plating was required to get better results. After the modification of the method, clear plaques were formed for the sewage sample. Thus, the protocol was validated providing the mean concentration of 3.5×10^7 PFU/ml lytic bacteriophage from the sewage sample.

Discussion and conclusion: We were able to extract bacteriophage from sewage samples. For other samples that were collected from seawater, plaque formation was not achieved indicating very low titer or due to unsuitable bacterial host cell.

View

Poster

Dining out? What is Growing on the Menu?

Hajar M Alazmi

Supervised by: Prof. Ali Dashti

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

Background: Restaurants are prominent communal gathering places creating a prime environment for spreading microorganisms to the public. The highest microbial traps in restaurants are associated with the menus, tables, and condiments. **Aim:** identify different types of bacteria that could grow on menus and restaurant tables when dining out.

Methods: This study was conducted at five restaurants/coffee shops in Jabryia City, randomly selected based on their popularity, availability, and affordability. Selection is based on a random process. Samples were swabbed during lunch rush hour. A total of 15 samples were swabbed from menus, condiments, utensils, and tables. Three samples were collected from each restaurant/ coffee shop.

Results: pathogens were classified as opportunistic bacteria. Four bacteria species were identified: gram-negative rods, *E. vulneris*, *E. Sakazakii*, *E. Cloacae*, and *E. Amnigenes*. *Staphylococcus spp.* is the only gram-positive cocci found. A majority of the species were initially found in the normal gut flora. Therefore there was a fecal-oral route of transmission of bacteria.

Conclusion: Based on the study's results, it has been established that restaurant menus harbor bacteria and, therefore, may pose a health risk to diners. Most of the isolated species were resistant to a set of antibiotics and only sensitive to Gentamicin based on antibiotic susceptibility testing results. The development of effective preventive measures, such as regular decontamination of menus, tables, and prepackaged condiments, will reduce the spread of food-borne pathogens, and hand hygiene is necessary to prevent cross-contamination.

View

Poster

The Effect of Metformin on Vitamin B12 Levels Among Patients With Type 2 Diabetes Mellitus

Shahad Alsanea , Dr. Fatima Alyatama

Medical laboratory science, faculty of Allied health Science, Kuwait University

Introduction: Type 2 diabetes mellitus (T2DM) is a prevalent global health problem and metabolic disorder characterized by impaired insulin sensitivity with inadequate insulin secretion. Metformin is the drug of choice in the majority of T2DM cases, it considered essential treatment of diabetes and most frequently prescribed first-line therapy for T2DM individual. Vit B12 plays a fundamental role in red blood cell formation, cell metabolism, maintenance the nervous system and the production of DNA. Vit B12 deficiency was reported among metformin-treated T2DM even. Several factors associated with this problem.

Aim: The aim of this study to determine the prevalence of Vit B12 deficiency among patients with T2DM on Metformin treatment.

Methodology: Serum and plasma samples were collected from 17 patients with T2DM and 10 healthy control subjects with mean aged >40 years old. The following were investigated, glucose, Vitamin B12, iron, and %transferrin saturation.

Results: Data obtained revealed significantly high glucose (8.9 ± 0.8 $p < 0.001$) levels among diabetics. iron, %transferrin saturation, and vitamin B12 levels among T2DM patients were significantly lower among diabetics compared to control subjects; (9 ± 1 $P > 0.02$, 7 ± 1 $P = 0.02$ and 220 ± 8 $p = 0.01$ respectively). The daily metformin dose was found to be negatively correlated with Vitamin B12 ($r = -0.4$). Furthermore, The treatment duration/year with metformin was also negatively correlated with vitamin B12 ($r = -0.84$).

Discussion: It is being reported previously that Metformin blocks the absorption of Vit B12, causing Vit B12 deficiency with subsequent anemia. In our study, we observed a significant decrease in Vit B12 levels among patients with T2DM who treated with different doses of metformin with variable duration time (Year).

Conclusion: our findings confirm the correlation between Metformin treatment and Vit B12 deficiency, therefore it is advisable to do a routine checkup for Vit B12 levels for diabetic patients who are treated with Metformin.

View

Poster

Association of plasma glucose at admission with COVID-19 Severe outcomes: A retrospective analysis

Manar Shabeb¹, Hamad Yaseen¹

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

Introduction: COVID-19 is a pandemic that was primarily detected in Wuhan, China in December 2019. On March 11, 2020, the World Health Organisation (WHO) declared COVID-19 as a global pandemic. COVID-19 is a viral infection caused by SARS-CoV-2. COVID-19 is characterised by variable clinical manifestations that vary from one patient to another. Patients diagnosed with COVID-19 can range from asymptomatic to patients expressing severe symptoms that may lead to death. COVID-19 outcomes are variable based on different factors. In this study, we aim to study the relationship between on admission plasma glucose levels and COVID-19 outcomes.

Methods: This is a retrospective study included 417 patients diagnosed with COVID-19 based on positive RT-PCR. These patients were admitted to Jaber Al-Ahmad Hospital in Kuwait between February 24, 2020 and May 24, 2020. Disease severity, outcomes, associated complications, and clinical laboratory findings were analysed and compared between diabetic and non-diabetic COVID-19 patients. Student's t-test was used to compare differences in continuous variables between groups, categorical variables were compared with a χ^2 test. We employed a logistic regression model and reported the odds ratios of the outcome of dying from COVID-19 for each 1 mmol/L increase in fasting blood glucose.

Results: The worst outcomes of the COVID-19 presented in the cohort were associated with diabetic patients. We found that every 1 mmol/L increase in fasting glucose is associated with 1.52 (95% CI: 1.34–1.72, $p < 0.001$) times the odds of dying from COVID-19.

Discussion and Conclusion: Diabetes is one of the risk factors that are associated with poorer prognosis and mortality of COVID-19. This emphasizes the importance of glucose monitoring in COVID-19 patients to decrease the chances of developing worse outcomes such as death. This also can provide better disease management and warn the health care staff to pay more attention to diabetic patients when diagnosed with COVID-19.

This study had number of limitations such as being a single-center retrospective study makes it susceptible to selection and referral bias. Additionally, as the data was collected in the beginning of the disease outbreak in Kuwait, the reported case fatality rate is overestimated.

Keywords:

COVID-19, SARS-CoV-2, Diabetes

View

Poster

Can Neutrophil-Lymphocyte Ratio Predict the Development of Gestational Diabetes in Kuwait?

Sanabel Eldesouqi , Fatma AlRashidi

Medical Laboratory Sciences Department, Faculty of Allied Health Sciences and Rehabilitation, Kuwait University

INTRODUCTION:

Gestational diabetes mellitus (GDM) is the term given for the hyperglycaemic state that commences during pregnancy. It is associated with chronic adverse outcomes for both the mother and fetus. It is established that placental hormones and fat tissue are the main factors initiating chronic low-grade inflammation. This inflammation can persist and affects cells in the muscles, fat, and liver, making them unresponsive to insulin, and leading to insulin resistance, the primary pathogenesis of GDM. We aimed here to assess whether the neutrophil-to-lymphocyte ratio (NLR) biomarker would predict the development of GDM in pregnant women in Kuwait.

METHODS:

This retrospective study obtained data from historical records in AlSabah Maternity Hospital in Kuwait. Only files that met our inclusion criteria were included in this study. Inclusion criteria were as follows: pregnant women who were naturally conceived, aged >18 years, free from any comorbidities, and have taken an oral glucose tolerance test (OGTT) at 24–28 weeks of gestation. Normally distributed data were analyzed using one way ANOVA test with multiple comparisons. Descriptive statistics were expressed as mean \pm standard deviation. Statistical significance was accepted when $p < 0.05$.

RESULTS:

When GDM and control groups were compared regarding hematological parameters, the multiple comparisons analysis showed that NLR was significantly higher in the GDM group in the first trimester ($p < 0.001$) with a mean of 5.49 ± 1.54 for GDM and 3.07 ± 0.67 for the control. However, when the same data set was analyzed in the GDM (4.84 ± 2.14) and control group (4.02 ± 1.44) in the third trimester, no significant difference was observed ($p > 0.05$). Furthermore, when the Pearson correlation test was applied, a positive correlation was found between NLR and HbA1c in the first but not in the third trimester.

CONCLUSION:

First-trimester NLR is an independent predictor for the development of GDM, and we propose adopting NLR, which is an inexpensive, straightforward, commonly performed parameter, as an early diagnostic tool for GDM for pregnant women in Kuwait.

KEYWORDS:

Gestational Diabetes Mellitus, Neutrophil-Lymphocyte Ratio, Biomarker

View

Poster

The spread of respiratory viruses in male and female patients during cold and flu season in Kuwait

Moudhi Alashaiger¹, Noor Dashti²

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

Introduction:

A comparison between viral respiratory diseases is done to see if these viruses spread during cold and flu season in Kuwait and if there is a difference in their spread between male and female patients. The respiratory Viruses that have similar symptoms and common around the world are influenza type A, influenza type B, human rhinovirus (HRV), adenovirus, and respiratory syncytial virus (RSV).

The aim of this study is to see the spread of the viruses such as influenza A, influenza B, RSV, Rhinovirus, and Adenovirus during cold and flu season in Kuwait, and to compare their spread in male and female patients.

Methods:

data collected from patients showing symptoms of respiratory viral disease, and admitted to Mubarak Al-Kabir hospital in Kuwait, were analyzed. The virus was identified from nasal swabs collected from the admitted patients between October and December 2021. Data from 541 admitted patients was obtained and analyzed. The recorded data was archived by the Virology unit at the hospital.

Results:

This large study of 541 male and female patients explains the spread of the viral respiratory diseases in Kuwait at Mubarak hospital during the cold and flu season. Those patients were presented to the hospital because they were suffering from acute respiratory illnesses. On October 2021, 100% male patients were infected with influenza A, and B. For other viruses on October, November, and December, the number of infected male and female patients are quiet the same.

Conclusion:

A significant increase of RSV was detected on October 2021, then the number of infected individuals with RSV decreased in the following months. This may indicate that RSV can spread more right before the winter season. Influenza A and influenza B spread more in winter season. Moreover, rhinovirus does not have a preferred season or month, it can spread throughout the year.

Keywords: viral respiratory diseases, HRV, RSV

View

Poster

Seasonal Virus-induced respiratory disease in Kuwait among adults and pediatric patients

Nadia Alenezi and Dr Noor Dashti

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

INTRODUCTION

Numerous viruses attack the human respiratory system, leading to a variety of clinical symptoms ranging from a minor involvement of the upper airways to the potentially fatal acute respiratory distress syndrome (ARDS). The purpose of this study was to explore the viral etiology of respiratory infections in Kuwait.

METHODS

Nasal swabs collected from 541 patients suffering from respiratory infections were tested to investigate the presence of four respiratory viruses. The patients were admitted to Mubarak Al-Kabir hospital from October to December in 2021 and were divided into two groups: pediatrics and adults.

RESULTS

Out of the 541 patients admitted, Children represented 75.5% (n=413) of this group, whereas adults made up 25.5% (n=138). Respiratory syncytial virus was detected in 197 (35.9%) samples, while human rhinoviruses were found in 170 (31.4%) of the patients' samples. RSV and rhinovirus infections were found in 167 (86.1%) and 144 (84.7%) pediatric samples, respectively. RSV infection rates reached their peak in October, with 119 patients infected. Adult patients, however, accounted for the majority (54.1%) of influenza A virus infections.

CONCLUSION

Based on the results of this study, respiratory syncytial virus and human rhinovirus were found to be the most common causes of respiratory infections among Kuwaiti children.

KEYWORDS:

Viruses, infection, respiratory, Kuwait

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Significance of Age and Hormone Receptor Status in Breast Cancer Patients in Kuwait

Ghadir Alsaghir, Dr. Maisaa Alwohhaib

¹Department of Medical Laboratory sciences, Collage of Allied Health Sciences, Kuwait University, Kuwait.

INTRODUCTION: Breast cancer occurs when there is an abnormal growth of cells in one or both breasts. Several factors affect breast cancer, these factors include gender, age, family and medical history, genetic mutations, certain drugs, and lifestyle. However, studies have shown that the presence of ER and PR receptors on tumors have been proven to have a significant effect on the prognoses of the disease and therapeutic approaches used. Hormone receptor positive tumors show positive response with endocrine treatments. This research's result is backed up with a more elaborate study performed in Tabriz University of Medical Sciences in Iran. It is also supported by another study about the correlation of age and hormone status performed in Karachi, Pakistan.

AIM: This research paper will be discussing the association of estrogen and progesterone receptors with breast cancer along with age as a major factor in breast cancer of women in Kuwait.

METHODS: Data of 33 breast cancer female patients were collected from Royale Hayat Hospital in Kuwait. The patients were separated into 6 age groups starting with patients in their 30s as the youngest age group, up to patients in their 80s as the oldest age group. Each group was divided according to their hormone receptor status which are HR+ and HR-. Hormone receptors positive (HR+) included patients with ER+, PR+ or both. On the other hand, hormone receptors negative (HR-) included patients with neither receptor positive. Hormone receptors were considered positive when the receptor concentration was 1% or more though the gold-standard method of IHC.

RESULTS: The highest prevalence of breast cancer in this study is in patients of ages 50 years old and above.

CONCLUSION: To conclude, it is apparent that age is a critical factor in breast cancer of female patients. It is most common in older age groups of patients, patients between the ages of 40 and 70 years old. Therefore, it is the ideal age for screening to have early detection as they are the ones at highest risk. Also, the high positive prevalence of HR results proves the importance of testing for those receptors as most tumors express them and treatment options are based on those results.

KEYWORDS: Breast cancer, Hormone receptors, Age, Estrogen, Progestrone

View

Poster

Exploring the clinical significance of HER2 gene amplification in breast cancer

Raghad Algsham ¹Dr. Danah Alqallaf ¹

Medical laboratory science, faculty of Allied health Science, Kuwait University

Introduction In Kuwait, around 39.8% of women are diagnosed yearly. Intratumoral heterogeneity fuels carcinogenesis and is the leading cause behind therapy resistance and poor prognosis in breast cancer. HER2 gene amplification is one of the oncogenes associated with poor prognosis in 15 to 20% of breast cancers. Here, we investigated the differences in the overall survival rate of breast cancer patients who showed different levels of HER2 gene amplification and associated that with the hormonal status of the tumor. The hormonal expression status of ER and PR, HER2 gene amplification ratio, and other clinicopathological characteristics of 488 patients were retrospectively retrieved from the Kuwait Cancer Control Center database.

Methods The comparison between tumors with HER2 amplification and others without was performed using Fisher's exact test. Patients with HER2 amplification were further grouped into subgroups based on the HER2 amplification ratio.

Results Our results revealed that patients with a HER2 amplification ratio of more than 2 had a better survival rate than others with less ratio. However, when the HER2 amplification ratio exceeded four, the survival rate was shortened compared to others with an amplification ratio between 2 to 4.

Conclusion we speculated that such a finding relates to the doses of the anti-HER2 therapies. Concerning the hormonal expression status, we found that tumors with no ER and PR expression showed a HER2 amplification ratio of less than 2. In contrast, tumors expressing both hormonal receptors indicated a high amplification ratio of HER2. In conclusion, this study demonstrates the impact of HER2 amplification testing to enhance overall survival by determining the correct dose of anti-HER2 therapies.

Keywords

Breast cancer, HER2 amplification, Overall survival, hormonal receptor

View

Poster

Skipping break fast modulates the rate of obesity in Kuwaiti adults

Abrar Alshemali Supervised by: Dr. Fawezyah Alnajjar

Department of Medical Laboratory Science, Faculty of Allied Health Science, Kuwait University

Background Obesity has become a major public health issue. Obese individuals have a BMI greater than 30 kg/m². Obesity prevalence and its comorbidities have increased worldwide. diabetes, hypertension fatty liver disease, and psychopathic disorders all are sequences of obesity. These conditions are reflected in changes in blood biomarkers including glucose levels, ALT, and lipid profile. Obesity can be caused by individual lifestyle and food habits. Studies showed that skipping breakfast increases obesity risk, but data is missing regarding Kuwaiti adults aged 18 to 29 years.

The aim of this project was to look for trends of skipping breakfast and its relation to obesity.

The methods of this project included a survey distributed among Kuwaiti adults aged 18-29 years, assessing the lifestyle, family history of obesity, history of the disease, food habits, and anthropometric measures. This project used an animal model to clinically validate the results. A total of (n=15) mice were divided into three groups of six each and fed either a normal diet or a high-fat diet. The groups were fed according to a certain protocol for 3 weeks. Blood biomarkers such as fasting glucose, ALT, Total cholesterol, HDL, and VLDL/LDL levels were collected. Measurement of liver weight determined glycogen content. Analysis was performed using graph pad prism p-value 0.05 was considered significant.

The results of this study found a significant association between VLDL/LDL and CTR (P=0.04), NDreg (P=0.03), and NDskp (P=0.01) in the HFDskp group. The fasting glucose showed a nearly complete association with HFDskp (R²=0.97). A significant association was found between BMI and age of 209 survey participants. OB BMI was positively correlated more than 5-6 times skipping breakfast.

In Conclusion, the study indicates that skipping breakfast may modulate the rate of obesity in humans. Skipping breakfast in HFD-fed animal models may induce the development of obesity.

View

Poster

Antibody Response to COVID-19 Vaccines in Individuals with Previous COVID-19 Infection

Maram Alkhaldi

Supervised by: Dr. Hamad Ali Yaseen

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

Background: A number of vaccines have been developed to control COVID-19 spread. Due to the increasing demand for these vaccines, there has been a shortage in their availability. Therefore, many countries had to choose priority to be vaccinated. **Aim:** We investigate the effect of having a previous COVID-19 infection on the level of antibodies in individuals who received the COVID-19 vaccines.

Methods: Serological analysis method was used to determine levels IgG, IgM, and Neutralizing antibodies in individuals who received the COVID-19 vaccines.

Results: There was a significant difference in the levels of IgG and neutralizing antibodies in individuals who took either one or two doses of COVID-19 vaccine and their counterpart who took the same but with a history of previous infection.

Discussion & Conclusion: This study confirmed that people who received the vaccine and had a previous infection had more antibodies than those who received the vaccine without a previous infection. This result can help us to choose priority groups in emergency cases, in addition to developing medical care and choosing the most appropriate treatment.

View

Poster

Glucose Effects on Human Skin Keratinocytes: Skin Complications Related to Diabetes

Suad Alhajri¹, Dr. Mashaal Al-Mutairi¹

¹Department of Medical Laboratory Sciences, Faculty of Allied health Sciences, Kuwait University

INTRODUCTION: Glucose regarded as a major source of energy for most cells in the body, however high levels had a negative impact on the metabolism. Recent studies have shown that hyperglycaemia as a risk factor for the development of multiple metabolic diseases like diabetes. Also, researchers have shown that having a hyperglycaemia may stop or delays the healing of wounds in human skin keratinocyte cells (HSKCs). A number of factors that are found to be affected in keratinocytes wound healing process as a result of diabetes are cells migration, proliferation, and abnormal expression of matrix metalloproteinases (MMPs). For that, in the present study the effect of hyperglycaemia on human skin keratinocyte cell proliferation, apoptosis and senescence was tested.

METHODS: Human skin keratinocyte cells cell line were treated with different concentrations of D-glucose. WST assay was performed to check proliferation and western blot was used to assess the protein expression activity of ERK MAP Kinase and apoptotic markers. B-galactosidase assay kit was used to measure the senescence. **RESULTS:** The current results suggest that high glucose dramatically reduces Human skin keratinocyte cells proliferation, apoptosis, and enhances senescence. **CONCLUSION:** reducing glucose intake and managing hyperglycaemia is a potential strategy for treating Human skin keratinocyte cells deregulatory and subsequently aging in diabetic patients and in healthy people. However, this hypothesis requires further investigation.

KEYWORDS:

Glucose, proliferation, Senescence, Apoptosis, ERK, Caspase

View

Poster

Analysis of Pre-analytical Errors in a Clinical Chemistry Laboratory

Asmaa Odah Odah¹, Mariam Albahrani¹

¹Department of Medical Laboratory science, Faculty of Allied Health Sciences, Kuwait University.

Introduction:

Laboratory total testing process consists of three phases: pre-analytical, analytical, and post-analytical phase. The pre-analytical phase is the most common source of errors.

Methods:

A total of 110,108 samples and test requests were collected from different department sources (inpatient, outpatient, and emergency) from a local hospital in Kuwait. Each sample/request with cause of errors were noted and evaluated for pre-analytical errors.

Results:

An overall of eight hundred twenty-eight (0.7518%) were reported as pre-analytical errors. The highest frequency of errors was found to be highest in the inpatient department (0.72%). The frequency of errors in the outpatient and emergency departments accounts for 0.03%, approximately.

Conclusion:

In conclusion, an increased occurrence of grossly hemolyzed samples was noted to be the major source of errors in the inpatient and emergency department.

Keywords:

Pre-analytical errors, department, phase.

View

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Immune Infiltration in Urinary Bladder Cancer

Badriah Alenezi and dalal almuaili

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

Abstract

Introduction: immunotherapy is a newly developed treatment for tumours. However, it was discovered that it is a suitable treatment for some patients, where it has good prognosis. And in some other patients it was ineffective, it has poor prognosis. Studies have shown that the efficacy of the treatment and the overall survival rate is dependent on the number of immune cells infiltrating the tumour. Hot vs cold theory, which refers to the degree of immune cells infiltration and its relation in tumour prognosis, is based on the amount of immune cells infiltration, which was proved to be true in colon. But it is still not approved in other types of cancer. This thesis was conducted to prove that the hot vs cold theory is applicable to urinary bladder cancer as well.

Materials and methods: sixteen patients with urinary bladder cancer blocks were retrieved and immunohistochemistry protocol was followed to stain the samples with CD3 (pan T-cell marker), CD4 (helper T-cell marker), and CD8 (cytotoxic T-cell marker).

Results: immune cells infiltration was measured as a range from 1 to 5. CD3 showed a wide range from 1 to 5, high immune cell infiltration. CD4 showed a lower range, because there was fewer patient samples. CD8 showed a low range of 1 to 4, but most results were 3.

Conclusion: CD3 results suggests that urinary bladder cancer may also reflect cold and hot tumours, and CD4 was not an indication of the theory as the samples were insufficient. In contrast, CD8 results were inconclusive, showing most samples' immune infiltration had a score of 3. In order to further the study and prove the theory, it is recommended to get more samples and to follow a more sophisticated protocol to assess more accurate values of immune infiltration.

Keywords:

Urinary bladder cancer, Immunotherapy, immune infiltration

View

Poster

Serum calcium level in relation to glucose concentration in patients with type 2 diabetes mellitus

Haia Alotaibi and Dr. Ghadir Jamal

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

Introduction

This study is established to investigate if there is any relation between serum calcium level and glucose concentration in patients with type 2 diabetes mellitus. Type 2 Diabetes mellitus (T2DM) is One of the most common endocrine diseases, is a chronic disease characterize by elevated blood glucose levels (hyperglycemias) with disturbances in the metabolism of carbohydrates, fats, and proteins resulting from defects in insulin, insulin secretion, or both. Insulin plays a key role in glucose homeostasis as it is the only hormone capable of lowering the blood glucose concentration through the sensitivity of the beta cells to glucose . The glucose-stimulated insulin secretion is dependent on Ca^{2+} entry through voltage-gated Ca channels. Within the cells, glucose initiates a chain of molecular events that lead to calcium channel opening, allowing calcium ions to flow into the beta cells. Calcium ions stimulate insulin release into the blood.

Method

Serum level of calcium and glucose were measured by AU 5800, AU 700 instruments, instruments and reagents from ATC company. Data was statistically analyzed using the statistical package for social science (SPSS).

Result

The results showed negative correlation with type 2 diabetes mellitus related parameters in males Age (P -0.004) and, glucose (P -0.005). Also, in female the results showed negative correlation with type 2 diabetes mellitus related parameter, such as age (P -0.002) and glucose (P 0.002). The results showed that serum calcium level appears constant compared to glucose concentration level in both sex.

Conclusion

From the analysis of the data, in the present work, it was found clearly that there was no significant correlation between serum calcium level and glucose concentration level in patients with type diabetes mellitus. No association was found between serum calcium level and glucose concentration level, Also there is no significant difference in serum calcium levels between males and females, which means the level of serum calcium level not affected significantly by the gender in patients with type 2 diabetes mellitus. This study indicate that there is no role for serum calcium level in the effects on glucose concentration level in patients with type 2 diabetes mellitus in both sexes.

Keywords

Diabetes Mellitus, Calcium, Glucose

View

Poster

Serum IL-33 as an early biomarker of liver damage in diabetic patients

Retaj Hayat, Yasmine Alshammari

Department of medical laboratory science, Faculty of Allied Health Science, Kuwait university

Background: IL-33 is a member of the IL-1 family of cytokines known to have both pro-inflammatory and anti-inflammatory functions. IL-33 has demonstrated a protective role in the pathogenesis of type 2 diabetes mellitus (T2DM). The aim of this study was to understand the relationship between serum IL-33 and liver function in T2DM patients.

Methods: Left over serum samples were collected from 80 patients diagnosed with T2DM. IL-33 was measured in serum using an ELISA kit and was correlated with liver function parameters including ALP, AST, ALT, total bilirubin and albumin.

Results: ALT, AST and total bilirubin showed a statistically significant negative correlation with IL-33 whereas albumin and ALP showed no association with serum IL-33.

Discussion & Conclusion: Data suggests that reduced levels of IL-33 may increase the risk of developing liver abnormalities. Therefore, IL-33 modulation may protect against liver damage and could be used as a marker for liver damage in T2DM.

Keywords: IL-33, Liver damage, Type 2 diabetes mellitus.

View

Poster

Comparative study of the quality of special stained sections done in Kuwait

Asmaa Almelhem and Saswan Ramadan

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

INTRODUCTION

Histology is the study of tissue structure under the microscope. Through it, the structure of tissues and the changes it might have, which could be pathological, can be visualized and observed. Staining tissue sections was a necessary step as most cells and cellular components are transparent and can't be distinguished under the microscope unless they are stained. Staining technique was vital to the quality of the stained section in the final result, as stained sections can be used to diagnose or supplement a diagnosis for a variety of diseases.

METHODS

This was a comparative study of quality of stained sections in different hospitals. Four stains (H&E, VVG, PAS and MT) were chosen to be used. In addition, stains were used on different tissue types. The study was carried out with 18 specimens (4 skin, 4 liver, 4 kidney, 6 intestine), all taken from the same rat and sectioned block. The samples went through the normal process of fixation, followed by processing in a machine, embedding, waxing, and sectioning. The sections were adhered to slides and dried. After slides were sent to different hospitals to be stained. The tissue sections, once stained by the hospitals, are then scored based on a set of criteria that evaluates its quality.

RESULTS

It was found that Hospital A and B showed an equal quality of stain in H&E while Hospital A showed lower staining quality in the VVG and PAS stains than B. However, Hospital B showed less quality in MT stain.

CONCLUSION

This study shows that the quality of staining can be considered sufficient. While there is a minor difference in the quality of stained sections depending on the stain, it is only the natural difference that would come when there is such a comparison.

KEYWORDS

staining quality, special stain, H&E, PAS, VVG, MT

View

Poster

Types of Human Platelets Antigen (HPA)in Kuwait for the past five years

Manar jassem Alshayji and Dr.Nouf Al-Ajmi

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

INTRODUCTION

Human platelet antigens (HPAs) are platelet-specific antigens that are located on the platelet's surface glycoproteins and can stimulate the production of alloantibodies once exposed to foreign platelets with different HPAs. HPA is involved in immunological diseases. Several studies reported HPA genotypes in the Arabian region. However, little data are available in Kuwait.

AIM

This work represents the first study on the distribution of human platelet antigen genotypes and alleles in Kuwait. It aims to analyze different HPA subtypes and identify the most frequent genotypes in Kuwait.

METHODS

Data collection included 337 samples from different individuals in Kuwait from the year 2018 until 2022. Data were retrieved from the late Salwa Sabah Al-Ahmad Al-Sabah stem cell and umbilical cord center under the supervision of a senior technologist. The information included types of HPAs; HPA-1 (a & b), HPA-2 (a & b), HPA-3 (a & b), HPA-4 (a & b), HPA-5 (a & b), HPA-6 (b), HPA-7 (b), HPA-8 (b), HPA-9 (b), HPA-10 (b), HPA-11 (b) and HPA-15 (a & b).

RESULTS

The most frequent HPA genotype in Kuwait is HPA-4 aa which accounts for 100% of the total population. After it, HPA-1 aa and HPA-2 aa with percentages of 71% and 74%, respectively. The least frequent HPA genotype was the bb in all the five types of HPAs, and the percentages were HPA-1 bb (4%), -2 bb(2%), -3 bb(13 %), and -5 bb(2%). However, for the rest genotypes, percentages were; HPA-1ab (25%), HPA-2ab (24%), HPA-3 aa (48%), HPA-3 ab (39 %), HPA-5 (69 %), HPA-5 ab (30 %), HPA-15 aa (23%), HPA-15 ab (46%), and bb (31%).

CONCLUSION

HPA is involved in several immune-mediated platelet disorders and platelet transfusion reactions. Therefore, it is important to identify all types of HPA that are in Kuwait to aid in diagnosis and, consequently, the prevention of immunological HPA diseases.

KEYWORDS:

Human Platelet Antigen (HPA), Platelets, Genotyping

View

Poster

Chronic Hydrogen Sulfide Donor and Exercise enhance activation of Hippocampal Neurogenesis process in Streptozotocin-Induced Diabetic Rats

Danah Elchaar, Asmaa Alrumaihi, Amal Alhendi, Dalal Alsadrah, and Teabah Alenezi,
Dr. Anwar AlBanaw

Department of medical laboratory sciences/ Faculty of Allied Health Science, Kuwait University

Introduction: Diabetes mellitus (DM) is a disease characterized by high level of glucose in blood. Studies with diabetic rats have shown neuronal apoptosis, microglial cell activation and compromised learning and memory. Although literature indicated the beneficial role of H₂S and exercise on neurogenesis, there are no studies on its effect on hippocampal neurogenesis in diabetic model.

Objective: The aim of the experiment was to investigate the effects of hydrogen sulfide (H₂S), a slow-releasing H₂S donor GYY4137, and exercise on learning and memory, anxiety, neuroprotection, expression of pro-apoptotic protein, such as (Bax), and activation of microglia in the streptozotocin (STZ)-induced diabetic male Sprague-Dawley (SD) rat model.

Methods: (SD) rats were injected intraperitoneally (ip) with (STZ) to induce type 1 DM. Diabetic-induced rats were treated with water-soluble, slow-releasing H₂S donor GYY4137 (50 mg/kg). Rats were exposed to a moderate intensity exercise five days a week (5m/min). Learning, memory, and anxiety were evaluated using water maze and open field tests. Histopathological changes and the expression of pro-apoptosis proteins in hippocampus were examined using immunohistochemistry. Microglial cells expressions were investigated using western blot.

Results: There was a significant increase in distance traveled in diabetic group compared to control group (P < 0.025). Whereas the distance traveled of diabetic treated and exercise group was significantly decreased compared to the diabetic treated group and diabetic exercise group (P < 0.05). Moreover, memory retention test showed that diabetic group with treatment and exercise spent significantly more time in target quadrant compared to the rest of treated groups (P < 0.05). GYY4137 and exercise prevented diabetes-induced increase in the pro-apoptosis protein (Bax) (P < 0.0032). The expression of the S-100 protein was significantly (P < 0.015) increased in the treated and exercise group compared to the untreated diabetic group.

Conclusion: H₂S exposure reduced inflammatory effects and apoptosis process caused by diabetes. The combination of GYY4137 and exercise was effective to restore hippocampal neurogenesis, arrest apoptosis and protect the cells. Further studies needed to explore the impact of the dose and time exposure on the tissue & its effect on other inflammatory diseases.

Keyword: Hydrogen Sulfide, Apoptosis, Neuroprotective

View

Poster

Comparison of Platelet to Lymphocyte Ratio and Neutrophil to Lymphocyte Ratio between Beta Thalassemia Major patients and normal controls in Kuwait.

Aisha Al-Daihani¹, Anwar Al-Awadhi¹

¹ Medical Laboratory Sciences, Faculty of Allied Health Sciences, Kuwait University

INTRODUCTION

Beta thalassemia major has two affected genes, that make it the most serious type of thalassemia with severe symptoms including severe anemia and high bilirubin in the blood due to intravascular hemolysis. Patients with thalassemia major need regular blood transfusion from two to three weeks, this can cause serious complication due to iron overload. Free iron in the body can react with oxygen causing oxidative stress which causes oxidative damage to the cells leading to inflammations. Researchers have discovered new inflammatory biomarkers which are Platelets to Lymphocyte Ratio (PLR) and Neutrophil to Lymphocyte Ratio (NLR) that were found to be valuable in determining the inflammation and the progress of various diseases.

The aim of this study is to determine PLR and NLR levels in beta thalassemia major patients in Kuwait compared to normal controls.

METHODS

Fifty-five thalassemia patients and 67 normal controls were enrolled in this study. One EDTA sample was collected from each patient and control, Complete Blood Count test was done using DxH 800 machine from Beckman – Coulter Company. PLR and NLR were calculated and compared using SPSS program.

RESULTS

We found that PLR was significantly lower in patients ($P < 0.001$) whereas NLR didn't show any statistically significant difference between thalassemia patients and controls ($P = 0.224$).

CONCLUSION

We found no difference between patients and controls in NLR suggesting that the balance between systematic immunity and inflammation is similar between patients and controls in our population. It is not clear why PLR was lower in patients compared to controls. It is recommended that this ratio be collected at several timepoints (before and after transfusion) to fully understand its value.

KEYWORDS:

Beta Thalassemia, Platelets to Lymphocyte Ratio, Neutrophil to Lymphocyte Ratio

View

Poster

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Hematological manifestations of heart disease in Kuwait

Bashayer AlHalawa , Dr.Nouf AlAjmi

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

Introduction:

Heart disease or cardiovascular disease (CVD) is one of the major causes of death worldwide. It occurs when the heart ability to supply enough blood to meet the body requirements is impaired. There are several tests to detect heart problems including high amount of LDL cholesterol, high troponin and others.

Methods:

Data collection involved 192 samples from Chest Hospital in AlSabah Medical area. Age range 18-93 years old. The data were divided into either patient (heart disease patient) with high troponin, or control with normal troponin level. The patient group included 100 samples and the control group included 92 samples. Data collected included troponin, CBC, and lipid profile results for each patient.

Results:

There were statistically significant (P values <0.05) differences between heart disease patients and controls in white blood cells (WBCs) and platelets. These include neutrophil eosinophil, platelet, and MPV (Mean Platelet Volume). There were also statistically significant differences between Hct (Hematocrit), MCHC (Mean Cell Hemoglobin Concentration), RBC (Red Blood Cell), RDWSD (Red cell Distribution Width Standard deviation), HDL (High Density Lipoprotein), and TG (Triglycerides).

Conclusion:

Heart disease affects several hematological and non-hematological components in the blood. Further investigation of variations of these parameters in heart disease might aid in discovering new biomarkers and therefore new treatments.

Keywords:

Heart disease ,troponin, CBC, lipid profile

View

Poster

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Short and long exposure of xylene on rats' skin tissues

Shahad Alkandari

Supervised by: Dr. Sawsan Ramadan

Department of Medical Laboratory Science, Faculty of Allied Health Science, Kuwait University

Introduction: Xylene is an aromatic hydrocarbon, toxic chemical that is produced from benzene and coal tar. Both of liquid and the gas forms of xylene can cause harm to human and animals. It's used as daily routine using as a clearing agent in histopathology laboratory under the safety cabinet. The quantity of absorption can be different from person to person such as, between normal person and person with dermatitis or other skin disease, from the exposure time, exposure to the substance in a closed or open place and also can be differentiated from person wearing protective material or not.

Methods: 6 female rats were shaved nearly the right back side of rats' hip and the left back side of rats' hip. In the first week the xylene was inserted on the skin of right back side of their hips. In the second week, 2 ml of xylene was continued put on each

Results: The Macroscopic examination showed that there was some physical appearance on the hips of rats, the skin appeared having redness and slightly got dryness. While the microscope examination of the right side of the hips showed that the keratinized layer was very thin and nearly dis available, the adipocyte cells were not available, and sweat glands appears normal

Discussion: The results that were obtained from our experiment showed that there were some changes that happened on the skin which are the dryness of skin due to loosing on the humidity of the skin. However, under the microscope changing on epidermal layer were seen, increase of the thickness and partial separating of the epidermal layer from basement membrane and other layers were observed. These results are acceding with other studies that were published by previous researchers. They also observe vasodilation and skin erythema that we couldn't notice it.

Conclusion: Through the results that were obtained from our experiment showed that there were some changes happened on the skin tissue. Alternative and safer material should be produced and used instead of xylene through tissue processing procedure or in occupational that used the xylene.

View

Poster

Beneficial Changes In The Intestinal Mucosa of Type One Diabetic Mouse Pups Whose Mothers Were Supplemented With Carnitine During Pregnancy

Moudhi Almutairi¹ and Thazhumpal C. Mathew²

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

Background: Diabetes mellitus adversely affects different organs and tissues in the body, including the intestinal mucosa, which is the inner lining of the intestine. It is found that supplementation of carnitine, a water-soluble amino acid, has several beneficial effects in alleviating diabetes induced abnormalities, including inflammation and damage to the intestinal lining. In the cells, carnitine is produced from lysine and methionine. Almost 75% of the carnitine is obtained from food sources. In the intestinal mucosa, enterocytes are involved in carnitine uptake. This study was focused on the effect of L-carnitine in the intestinal mucosa of non-obese diabetes (NOD) mice pups whose mothers were supplemented with carnitine during pregnancy. NOD mice are a genetically well-defined animal model for Type 1 diabetes.

Materials and Methods: In this study, NOD diabetic mouse pups whose mothers were supplemented with carnitine during pregnancy were used. The diabetic mice pups were divided into 3 groups. They are mouse pups whose mothers were fed on a low carnitine diet during pregnancy (Group 1), those mothers on a low carnitine diet supplemented with 0.30mg/gm l-carnitine (Group 2), and those mothers on a low carnitine diet supplemented with 0.60mg/gm l-carnitine (Group 3). The animals were sacrificed and the small intestine were removed and the mucosal histological changes were studied using Mayer's Hematoxylin and Eosin, Periodic Acid Schiff's and Alcian blue and Alcian blue staining at PH 1 for mucins.

Results: NOD mouse pups whose mothers were given only low carnitine diet showed severe diabetic changes such as inflammation and thickening of the mucosa. The histopathological data presented in this study suggests that carnitine supplementation has beneficial effects in gastrointestinal function as compared to the mouse pups whose mothers were not supplemented with carnitine in the low carnitine diet.

Conclusion: The results presented in this study suggest that L-carnitine supplementation in the diet of pregnant NOD mothers had beneficial effects on the intestinal mucosa in type 1 diabetes.

Keywords: Intestinal mucosa; diabetes; mucin, carnitine

View

Poster

The relationship between irregular food intake trends and obesity

Bashayer Shareif and Dr. Fawzeyah Alnajjar

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

Background: Obesity is understood to be an accumulation of the lipid as well as excess body weight. It's linked to numerous medical conditions which include hypertension, coronary heart diseases, sub-fertility etc. As a result, it is critical to ensure that adult people should be eating a healthy balance diet because it will affect directly the degree of obesity in their body, and this has been mentioned in the past research and surveys for the adult group. Unfortunately, there is missing data regarding our age group 18-29 years in regularity in food intake. Aim: The aim of this study is to evaluate the effect of irregular food intake habits on obesity in a group of Kuwaiti adults aged from 18-29 years old, depending on a survey questioner.

Method: we investigated 212 individuals in age range between 18-29 years old and we asked certain questions regarding anthropometric measures, food intake habits, food intake types, and healthy food.

Results: Among the 212 individuals 32% showed BMI of overweight (OW) in age 18 years, 44.44% showed BMI of normal weight (NW) in age 19 years, 33.33% showed BMI of normal weight (NW) in age 20 years, 50% showed BMI of normal weight (NW) in age 21 years, 41.93% showed BMI of normal weight (NW) in age 22 years, 42.1% showed BMI of overweight (OW) in age 23 years, 42.85% showed BMI of obese (OB) in age 24 years, 42.85% showed BMI of overweight (OW) in age 25 years, 33.33% showed BMI of normal weight (NW) and overweight (OW) in age 26 years, 25% showed BMI of all category in age 27 years, 42.85% showed BMI of overweight (OW) in age 28 years, 55.55% showed BMI of normal weight (NW) in age 29 years.

Conclusion: In the present study, it showed a high prevalence of overweight and obesity for a BMI from 25 and more in the adult Kuwaiti people.

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Lymphoid infiltration in liver cancer tissue

Mariam Alqumrak¹, Anwar Albanaw²

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

INTRODUCTION

Liver cancer is the 6th most common cancer worldwide. Infiltration of immune cells, particularly lymphocytes, into the liver cancer tissue is referred to as lymphoid infiltration. It is a crucial step in the immune system's fight against cancer cells. CD4+ T cells, CD8+ T cells, NK cells, and B cells can identify and target cancer cells, preventing their growth and dissemination. Better patient survival is linked to liver cancer tissue with a higher density of lymphocytes. The aim of this study is to investigate the presence of lymphoid infiltration within liver cancer tissues.

METHODS

All cases of liver cancers diagnosed between the year 2011 and 2012 were scanned from the records of the histology department, in Amiri hospital. After the ethical approval a total of seven paraffin block samples with liver cancer diagnosis were collected. Ethical approval for this project was granted from the HSC committee. All samples were processed, stained using immunohistochemistry using CD3, CD4, and CD8 markers, and evaluated based on the Allred scoring system.

RESULTS

By comparing the three markers, only two samples showed positive reaction to all the three markers. Two samples were negative for any of the three markers, and two samples were positive for CD3 and CD8.

CONCLUSION

In conclusion, investigating the immunological reaction in liver cancer requires many samples due to the diversity of this disease, which could be primary or in many cases secondary to other cancers from the digestive system. Nevertheless, this is a preliminary study to see the possibility of detecting and locating the presence of lymphocytic populations in liver cancer tissue. Our results showed the majority of samples contained a good amount of lymphocytes which has been correlated with better survival in previous investigations.

KEYWORDS:

Liver cancer, lymphoid infiltration, CD markers.

View

Poster

Effect of Immune Cell Proliferation in Inducing Apoptosis in Prostate Cancer

Lobna Alzaidi¹, Dr. Anwar Al-Banaw¹, Dalal AlMuaili¹, Dr. Sulaiman ALRUSH AidAN²

¹Medical Laboratory Sciences, Faculty of Allied Health Science, Kuwait University, Kuwait. ²Histology Department, Amiri Hospital, Ministry of Health.

INTRODUCTION

Prostate cancer is considered the second most common cancer after lung cancer worldwide. It is the fifth cause leading to death in men. It accounts for 6.6% of cancer cases in Kuwait, which is a relatively high incidence among Kuwaiti males, and 3% of the mortality rate in 2020. Different strategies have been developed in understanding and controlling the disease with limited success. The role of the immunological reaction in the cancer microenvironment has been the center of attention due to the effectiveness of immune cells in controlling the disease. Aim: semi-quantify the expression of CD3, CD8, CD4, and PD-1 immunohistochemically in samples from patients with prostate cancer.

METHODS

Sixteen samples of prostate tissue and biopsies were selected for this study, including three benign prostate hyperplasia and thirteen samples with prostate cancer. The tissues were stained with CD3, CD4, CD8, and PD-1 immunohistochemically using the Allred scoring system.

RESULTS

Moderate to high scores were observed in all CD3 and CD4 positive samples. Only one out of sixteen prostate tissues showed positive expression of CD4, which was a benign prostate tissue sample. Three out of thirteen prostate cancer samples expressed PD-1. No clear association was seen between the PD-1 marker and the other CD markers.

CONCLUSION

CD3 and CD8 were seen in most prostate cancer tissues. No expression of CD4 T helper cells was seen in prostate cancer samples, in contrast to other studies. Three prostate cancer tissues showed positive expression of PD-1 cells. It is the first study that compared CD markers and PD-1 using the Allred scoring system. Further investigations should be done to confirm the current results. CD markers can provide significant information about the progression of the disease and how the immune system reacts against prostate cancer.

KEYWORDS:

Prostate cancer, prostate tissues, CD3, CD4, CD8, PD-1

View

Poster

Is the Daily Use of Cosmetic Products Safe?

Nourah Al-Rasheedi and Fatma Al-Rashidi

Department of Medical Laboratory Sciences, Faculty of Allied Health Sciences and Rehabilitation, Kuwait University

Introduction

Women use at least five care and cosmetic products containing approximately 160 ingredients daily. Most of these products contain heavy metals (HM) that are classified as human carcinogens. These HM are directly applied on the skin and absorbed into the bloodstream. Consequently, HMs accumulate over time, leading to many health problems that range from skin allergic reactions to malignancies. It is well acknowledged that HMs are necessary for the cosmetics industry and can not be avoided. Therefore, the GCC standardization organization (GSO) defined an acceptable level of HMs in cosmetics that should not be exceeded. Nevertheless, it has been reported in neighboring countries that some cosmetic products exceed the defined acceptable HM limits in their markets. Therefore, we aimed to test the concentration of HMs in cosmetic products known to be used frequently by women in Kuwait.

Method

Cosmetic products were obtained randomly from variable brands with wide price ranges for local markets in Kuwait. HM concentration was analyzed in fifty-five cosmetics types and brands samples using inductively coupled plasma atomic emission spectroscopy (ICP-OES). The instrument multiplexed analyzed 22 elements with a specific wavelength for each element.

Result

The results showed that nickel levels exceeded the acceptable level (5ppm) in almost all tested eye cosmetics. The results also indicate that arsenic levels exceeded the acceptable level (3ppm) in 50% of tested lipsticks and 90% of eye cosmetics. With only one exception, arsenic concentration exceeded the allowable levels in intermediate and high-end eye and lip cosmetics. Furthermore, the results illustrate that HMs concentrations were within acceptable levels in the face cosmetic products (foundation, powder, blusher, and concealer) in all tested samples.

Conclusion

This study tested fifty-five cosmetic products with different brands obtained from local markets. According to the acceptable limit of HM set by the GSO, eye cosmetic products are contaminated with nickel in varying concentrations. Furthermore, cheap low-end lipstick products are contaminated with arsenic. Therefore, our findings suggest that daily use of eye cosmetics and low-end cheap lip cosmetic products can put the user at risk of developing chronic nickel and/or arsenic poisoning.

Keywords

Heavy Metals, ICP-OES, Cosmetics

View

Poster

Prediction of Cervical Cancer Precursor Lesions by Quantitative Methylation Specific PCR: a Retrospective Study

Moody Al-Roomy¹, Rana Al-Awadhi¹, Wassim Chehadeh²

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

2 Department of Microbiology, Virology Unit, Faculty of Medicine, Kuwait University

Introduction

Since the discovery of the Papanicolaou test, several limitations were observed in the cervical cancer screening program. As the infection with a high-risk HPV (hr-HPV) genotype is associated with the development of cervical cancer, hr-HPV-based screening was implemented. However, the specificity of hr-HPV-based screening is low, therefore further triaging is required. DNA methylation is one of the common epigenetic modifications in cervical cancer, which can be used as a triage tool. This study was undertaken to evaluate the performance of FAM19A4 and hsa-mir-124-2 hypermethylation as a triage tool for women who are at risk of developing cervical cancer or high-grade cervical cancer precursor lesions by taking into consideration the cytology report, histology diagnosis, and human papillomavirus (HPV) status.

Methods

A total of 330 cervical Thinprep samples were retrospectively collected and used for DNA isolation. HPV DNA was detected by real-time PCR, and HPV genotypes were identified by Sanger-based sequencing. DNA extracts were bisulfite-treated, and hypermethylation of FA19A4 and mir-124-2 genes was detected by a quantitative methylation-specific PCR (qMSP) test using the QIASure Methylation assay.

Results

Hypermethylated genes were detected in 27 (9.6%) cervical samples, mostly found in women diagnosed with HSIL (77.8%), or CIN3 (72.7%). The sensitivity and specificity of the qMSP test to predict CIN3 lesions among women with high-risk HPV was 75% and 91%, respectively.

Discussion/conclusion

There was a significant correlation between high-grade cervical cancer precursor lesions and the detection of hypermethylated genes in samples positive for high-risk HPV. Our results suggest that QIASure Methylation test can be used as a triage tool to identify women at risk for cervical cancer progression.

Keywords: Cervical cancer, QIASure Methylation test, Hr-HPV

[View](#)

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Occupational Therapy (OT)



OT Awarded Posters

No.	Name	Title
OT-5	Aldanah F. Alharbi, Hanin M. Ghayedi, Haneen W. Nassar, Kawthar M. Alqattan	<u>Factors influencing telehealth implementation in Kuwait from pediatric occupational therapists' perspective: A qualitative study</u>
OT-10	Arwa Alshammari, Esraa Alenezi, Ghaliya Aljubairi, Haya Shabakoh, Salma Almutairi	<u>The hidden struggles: Exploring anxiety, stress, and depression on quality of life among cancer caregivers in Kuwait: Cross-sectional</u>

Cross-cultural understanding of 'occupation' in the Middle Eastern regions: A qualitative design

Reem Almutairi¹, Sarah Matar¹, and Noor Almaawda¹, OTS

Supervisor: Feddah Edrees, PhD, OTR

1.Occupational Therapy Department, Faculty of Allied Health Sciences, Kuwait University

INTRODUCTION

The concept of occupation is addressed greatly in literature and described as a diverse activity. Although occupational scientists could transfer the core concepts of occupational therapy globally, the translation of the word occupation should be considered. As a result, researchers frequently misconstrue cultural variations in ways of doing and the connotations the term represents. The theoretical basis of occupational therapy was developed in the Western world utilizing their cultural presumption. Therefore, the merging and critique of meaning, historical development, and occupational therapy (OT) principles are inadequate when transferred from Western cultures to the Middle Eastern regions. The purpose of the study is to (a) explore the development and translation of the meaning of 'occupation', (b) understand the cross-cultural critique and depiction of OT principals/models within the region, and (c) understand the cross-cultural contextual factors influencing the translation of the word 'occupation.'

METHODS

The research study is descriptive qualitative design. The study entails using 12 open-ended self-developed questions. Data was analysed using descriptive thematic coding. Prior review has been obtained from the Kuwait University's Health Sciences Centre Ethical Research Committee (VDR/EC- 4017).

RESULTS

The four overall themes across the diverse participants from all regions globally: (1) therapeutic terminology and language for action; (2) identity and experiential opportunities; (3) process of living: health and wellbeing; (4) concepts for independence and interdependence in groups and communities.

The middle eastern regions presented 6 major in-depth themes stemming from the overall global themes. The themes elaborate in-depth demonstration of the inadequate transfer of ideas and translation practice into: (1) research and therapy (translational practice); (2) tool for rehabilitation; (3) constructed personal and social significance; (4) a spectrum for being (survival to wellbeing); (5) situational processes of occupation; and (6) geo-cultural (geographical and cultural) dimensions.

CONCLUSION

Western cultural values are deeply rooted in occupational therapy practice and theory, with definite effects on service delivery in non-Western settings. The profession's core theories, concepts, and models frequently hold beliefs foreign to and incompatible with Middle Eastern cultures. Furthermore, geographical and cultural dimensions can determine the way occupation is defined.

KEYWORDS:

Occupational science, culture, social construct

View

Poster

Exploring the Knowledge and Attitude about Occupational Therapy from the Perspective of Healthcare Professionals in Dialysis Centers

Aroub Alotaibi¹, Alanoud Almutairi¹, Manal Alenezi¹, Shaha Alhais¹

¹Occupational Therapy Department, Faculty of Allied Health Sciences, Kuwait University

Introduction and Objectives:

Hemodialysis (HD) treatment may negatively affect the occupational performance and quality of life of individuals with renal failure. The knowledge of healthcare professionals in dialysis centers about occupational therapy (OT) is limited. The study aimed to explore the level of knowledge and attitude among healthcare professionals about the role of occupational therapy in dialysis centers.

Subjects and methods:

This is a multi-center descriptive study targeting all healthcare professionals in four dialysis centers across Kuwait. The Knowledge and Attitudes Toward Occupational Therapy Practice (KAOTP) questionnaire was utilized to assess the healthcare professionals' knowledge and attitude about occupational therapy. The ethical approval was obtained from Kuwait University and the Ministry of Health (288).

Results:

A total of 185 healthcare professionals completed the survey. The overall knowledge level of OT among the participants was limited, whereas their attitudes were favorable. Characteristics of being a female (67.0%), a nurse (64.9%), and working experiences ≥ 15 years (26.5%) contributed significantly to the knowledge of OTP, even though 139 (75.5%) of the participants correctly identified activities of daily living (ADLs) as an OT domain, 78 (42%) of them chose range of motion as a domain. More than three-quarters of the participants (79.5%) believed that OT is an equally important healthcare profession and a part of the rehabilitation team. Also, 132 (71.4%) agreed that more emphasis on the role of OT is needed in dialysis centers.

Conclusion:

The study revealed that the attitudes of healthcare professionals towards occupational therapy practice (OTP) were positive, but their knowledge about it was insufficient. The roles and objectives of each healthcare discipline must thus be defined, and interprofessional collaboration must be prioritized in Kuwait.

Keywords: Chronic kidney disease, Hemodialysis, perception, Occupational Therapy.

View

Poster

Levels of loneliness and quality of life among retirees in Kuwait: Implication to practice.

Alhanouf Almutairi¹, Hind Alshammari¹, Munwa Alshammari¹, Zainab Aldhafeeri¹

Supervisor: Hamad Alhamad, PhD, OTR

¹Occupational Therapy Department, Faculty of Health Sciences and Rehabilitation, Kuwait University

Introduction:

The number of retirees in Kuwait is rising quickly, and this is causing more people to become concerned about their well-being. Despite the fact that loneliness and quality of life are significant indices of retiree wellbeing, little research has been done on the topic among retirees in Kuwait. The aim of this study is to explore the level of loneliness and quality of life among retirees in Kuwait.

Methods:

This is a cross-sectional descriptive research targeting retirees who live in Kuwait. The UCLA loneliness scale (version 3) and the 36-Item Short Form Survey (36- SF) were utilized. Data was analyzed using SPSS. The ethical approval was obtained from Kuwait University and the Ministry of Health (286).

Results:

Total respondents in this research were 202 (N=202). The results indicate 77.7% (N=157) experience moderate level of loneliness, 19.8% (N=40) experience high level of loneliness, and only 20.5% (N=5) experience low level of loneliness. The results of the SF-36 health related questionnaire, participants scores in the eight domains: Physical functioning, general health, role limitations due to physical and emotional health, energy, social functioning, pain, and emotional wellbeing, scored low means. The average of the means was calculated and was (49.8), which indicated that all participants have moderately low Quality of life. Significant relationship with p value equal to ($p = 0.004$), was found between a sociodemographic characteristic and level of loneliness in which retirees who were married indicated higher levels of loneliness compared to the single, divorced, and widowed retirees.

Conclusion:

The study revealed retirees in Kuwait feel moderate loneliness and have a low Quality of Time. The study indicates that retirees should be more considered emotionally and improved and help explore the negative effects on their quality of time In addition to exploring the leading factors to the feeling of loneliness.

Keywords: Older adults, social isolation, work

View

Poster

The level of burden and quality of life among caregivers of stroke survivors: a descriptive cross-sectional study

Abeer Alrasheedi¹, Aya Awad²,
Qatr-al nada AlEnezi³, Zainab Alostath⁴, and Dr. Fahad Manea

Department of occupational therapy, College of Health Sciences and Rehabilitation, Kuwait University, Kuwait

Introduction: Caregivers are invisible patients who are exposed to a new role due to the sudden life threat of someone close to them. The majority of studies on caregivers of stroke survivors found a negative impact of caregiving on the health, well-being, and quality of life of the caregivers. Therefore, the study aimed to determine the association between burden level and QOL domains and to compare burden level and quality of life with the characteristics of caregivers of stroke survivors.

Methods: The approval number was 123. A descriptive Cross-sectional study was conducted. Demographic data about the caregivers and the patients were collected. Self-administered questionnaires: Zarit Burden Interview (ZBI-12) and World Health Organization Quality of Life- BREF (WHOQOL-BREF) were collected from caregivers of stroke survivors. Chi-square was performed to determine the association between the level of burden and the physical, psychological, social, and environmental domains of QOL. Mann Whitney U and Kruskal Wallis tests were performed to determine the differences between caregivers' characteristics on the level of burden and quality of life.

Results: The study included 201 participants. The caregivers of stroke survivors had a greater burden (mean = 22) and lower quality of life (mean= 49). A chi-square independent test showed a highly significant between a poor physical domain and a high level of burden ($X^2(6)=35.784$, $p=.000$), with a moderate association = .309. A Kruskal-Wallis H test showed that there was a statistically significant difference in the burden of caregivers score between the employment, $X^2(2)= 11.865$, $p= .003$, with a mean rank burden care score of 111.55 for employed caregivers, 81.69 for unemployed caregivers, and 83.36 for retired caregivers.

Conclusion: Most caregivers of stroke survivors experienced a high burden and low quality of life; there was also an association between burden and quality of life domains among caregivers of stroke survivors. Healthcare professionals should consider these issues facing caregivers when providing services for stroke survivors.

Keywords:

Caregiving, stress, well-being

View

Poster

Factors influencing telehealth implementation in Kuwait from pediatric occupational therapists' perspective: A qualitative study.

Aldanah Alharbi, Hanin Ghayedi, Haneen Nassar, Kawthar Alqattan, and Dr. Zainab Jasem
Occupational Therapy Department, Faculty of Medical and Rehabilitation Sciences, Kuwait University,
Kuwait

Background

Telehealth is the application of therapeutic services (evaluation, intervention, consultation, prevention) through the use of telecommunication technology to connect clinicians with their clients. In Kuwait, there are no studies that address factors affecting occupational therapists and children or their caregivers when they use telehealth with pediatrics population. Therefore, this study aimed to explore the factors influencing telehealth implementation in Kuwait from occupational therapists' perspective.

Methods

A qualitative research design was used in this study. Twelve pediatric occupational therapists with a minimum of one year of experience working with children in Kuwait were recruited. The used sampling methods were purposive and snowball sampling. Participants' perspectives were explored through two focus group discussions. The data were analyzed using thematic analysis. The ethical approval number is 99, and it was obtained from the Institutional Review Board of Kuwait University.

Results

Three themes emerged: (1) Feasibility of telehealth, including the usability of telehealth and home environment, (2) challenges in implementing telehealth, which includes caregivers and children hindering factors and therapists' challenges, (3) future direction of implementing telehealth from therapists' point of view, which consists of suggested requirements and criteria for telehealth implementation in occupational therapy practice. The study's findings demonstrated that providing telehealth services has benefits for therapists, children, and their caregivers, including saving time, flexibility in scheduling sessions, and serving more clients. However, the use of telehealth may be constrained by several variables, including privacy concerns, lack of guidelines, parental bias, home social environment, children's tolerance level, and their health conditions. As a result, therapists suggested having clear criteria surrounding telehealth to overcome any challenges.

Conclusion

The study findings showed that there are some facilitators and barriers to telehealth implementation in Kuwait. Therefore, understanding the occupational therapists' perspectives on different factors influencing telehealth implementation is essential to enhance its use by overcoming the perceived challenges. By developing clear guidelines and criteria, we could overcome most of these obstacles and expand our services to reach a wide variety of people worldwide.

Keywords: Telerehabilitation, children, challenges.

View

Poster

The prevalence of psychological symptoms, associated factors and coping strategies among Kuwait University Students: The need for the development of counseling centers in all faculties

Supervisor: Dr. Naser Alotaibi

Students' names: Danah Alfaraj, Danah Alrowaili, Fatemah saad Alazemi, Khuloud Alotaibi, Latifa Alduaij, Mashaal Alrasheedi

Affiliation: Occupational Therapy Department, Faculty of Allied Health Sciences, Kuwait University, Kuwait City, Kuwait.

Abstract

Introduction: It is known that a student's life at the university is more emotionally and academically demanding. During this period, students are exposed to several challenges that make them more vulnerable to developing mental health symptoms. The purpose of the study was to explore the psychological symptoms and associated factors of students at Kuwait University (I.e.: stress, depressive and anxiety symptoms). This study also sought to identify the coping strategies used by these students to address their psychological symptoms.

Methods: A descriptive and cross-sectional design was used. probability Sampling (cluster sampling) was utilized including Kuwait University students of six randomly selected faculties (Faculties of Education, Sharia, Business Administration, Allied Health and Engineering). Two validated instruments were used: DASS-21(measures the psychological symptoms) and Brief-COPE (assesses coping strategies utilized). An online survey was sent to the students of the chosen faculties. Descriptive statistics were utilized, and nonparametric tests were used to analyze the study findings. The ethical approval number is 293.

Results: The total sample consisted of 1142 participants from the randomly chosen faculties. The prevalence of psychological symptoms among Kuwait University students was 69.3% for anxiety symptoms, 59.6% for depression symptoms and 51.5% for stress symptoms. Concerning the stress symptoms among students at Kuwait University faculties, students at the Faculty of Allied Health Sciences have significantly higher stress symptoms ($P < 0.001$). In addition, students at the Faculty of Sharia have significantly higher anxiety symptoms compared to students of other faculties ($P < 0.001$). Moreover, medical illness and family problems of the study participants have significant impact on their psychological symptoms ($P < 0.001$). The most coping strategies utilized by Kuwait University students was the avoidant (maladaptive) coping strategies ($n = 888, 77.8\%$).

Conclusion: Due to the huge number of students having psychological symptoms at Kuwait University, we recommend the development of counseling and wellness centers at all Kuwait university faculties. It is further essential for the university administration to support the provision of academic course in all university faculties related to "mental health, coping strategies and academic performance" thus improving the psychosocial health and academic performance of students.

Keywords: Mental Health, Curriculum, Wellness Programs

View

Poster

Study 1 of 2: Examination of the prevalence of musculoskeletal disorders among patients with diabetes and associated risk factors: Cross-sectional study

Sbecha Albassam¹, Taif Almutairi¹
Aseel Alotaibi¹, Kalthoum Balouch¹
Supervisor: Musaed Z. Alnaser, PhD, OTR

¹Occupational therapy department, Faculty of Allied health sciences, Kuwait University

INTRODUCTION:

Diabetes mellitus is a serious, long-term condition that occurs when raised levels of blood glucose occur due to the body's inability to produce any or enough insulin. One in 4 adults in Kuwait has diabetes, with a prevalence rate of 25.5% of the population. Musculoskeletal disorders are a leading contributor to disability around the world. People with diabetes might be at a higher risk of developing musculoskeletal disorders. Diabetes can make people more susceptible to musculoskeletal injuries. Our search of the literature showed a lack of scientific research studies examining patients with diabetes and musculoskeletal disorders in Kuwait. The first purpose of the study was to determine the prevalence of musculoskeletal disorders among patients with diabetes in Kuwait. The second purpose was to examine associated risk factors.

METHODS:

This study was cross-sectional, non-experimental, and descriptive. The Nordic Musculoskeletal Questionnaire, which consists of closed-ended questions, contains self-administered questions that relate to musculoskeletal disorders in the last 12 months. In this study, the first item was used. Chi Square test was used to determine the association between diabetes and the risk factors. Mann-Whitney U test was used to find the differences between the types of diabetes with musculoskeletal disorders. Alpha level was set at .05.

RESULTS:

This paper found that the prevalence of musculoskeletal disorders among diabetic participants was 75.4%. Musculoskeletal disorders were significantly associated with type 2 diabetes and chronic health conditions (heart disease, blood pressure and asthma). There was a significant difference between diabetic patients with ($m = 218.39$) and without musculoskeletal disorders ($m = 125.39$) on age ($U = 7381.5$, $p = <.001$), BMI ($U = 7012.0$, $p = <.001$), and duration of diabetes ($U = 9198.5$, $p = <.001$).

CONCLUSION:

Musculoskeletal disorders are considered common among diabetics, especially type 2 and many health risk factors are associated with their development.

KEYWORDS:

BMI, disability, risk factors

[View](#)[Poster](#)

Study 2 of 2: Examination of quality of life among diabetic patients with musculoskeletal disorders: Cross-sectional study

Sbecha Albassam¹, Taif Almutairi¹
Aseel Alotaibi¹, Kalthoum Balouch¹
Supervisor: Musaed Z. Alnaser, PhD, OTR

¹Occupational therapy department, Faculty of Allied health sciences, Kuwait University

INTRODUCTION:

Approximately 1.71 billion people have musculoskeletal disorders worldwide. Musculoskeletal disorders have a higher prevalence in people with type 2 diabetes compared with type 1. Musculoskeletal disorders can cause reduction of a person's ability to work and participate in society, in result, lowering quality of life. Diabetics with musculoskeletal disorders were associated with increased odds of difficulties with activities of daily living. The first purpose of this study was to examine the relationship of patients with diabetes and musculoskeletal disorders, on their quality of life. The second purpose was to examine the difference between type 1 and type 2 of diabetes with musculoskeletal disorders on quality of life.

METHODS:

This study was cross-sectional, non-experimental, and descriptive. Two self-administered closed-ended surveys were used. The General Nordic Musculoskeletal Questionnaire was designed to identify musculoskeletal disorders in the anatomical areas during the past 12 months, in addition to measuring the performance of daily living activities. The 36-Item Short Form Survey was designed to capture adult patients' perceptions of their own health and well-being on 8 domains. Alpha level was set at .05.

RESULTS:

This study found that diabetic participants with musculoskeletal disorders reported moderate levels on all domains of quality of life. Type 1 diabetic participants with musculoskeletal disorders generally had better health than type 2 diabetic participants with musculoskeletal disorders. The analysis showed that the most reported anatomical areas with musculoskeletal disorders for participants with diabetes were the shoulder (59.2%), neck (54.8%), and lower back (54.8%).

CONCLUSION:

Having diabetes combined with musculoskeletal disorders significantly impacts the patient's quality of life. Type 2 diabetics are more prone to have lower quality of life.

KEYWORDS:

Well-being, lower back, activities of daily living

View

Poster

Investigating the prevalence of musculoskeletal disorders and associated risk factors with amateur padel players in Kuwait

Abdullah Aldeai, Dana Alrammah, Nouf Almutairi, Nourah Alshammari, Salma Alomaira
Occupational Therapy Department, Faculty of Allied Health Sciences, Kuwait University.

Introduction

The increased participation in sports activities such as padel comes with a high risk of the attainment of Musculoskeletal Disorders (MSD). This study aimed to investigate the prevalence of MSD among amateur padel players and associated risk factors.

Method

The ethical review board approval was obtained (number 143). This study design is cross-sectional descriptive statistics. Nordic Musculoskeletal Questionnaire (NMQ) and Pain Disability Questionnaire (PDQ) were used. The chi-square independent test and Mann-Whitney were used to show the association between variables and differences between groups.

Results

The total number of participants is 351. Of these 96(27.4%) were females, and 255(72.6%) were males. The results showed that the prevalence of musculoskeletal disorders (MSD) among amateur players of Padel in Kuwait is 15.1%. The shoulder was the most reported anatomical area to be injured among the participants with injuries (41.5%). There was a significant association between the duration of playing padel 2-4 hours/week and injuries related to padel ($\chi^2(1) = 24.27, p < .001$) with a moderate association ($\phi = .263$). There was a significant association between players who use special padel shoes and related padel injuries ($\chi^2(1) = 17.375, p < .001$) with weak association ($\phi = .223$). Mann-Whitney test showed that there was a significant difference between males ($\mu = 30.36$) and females ($\mu = 15.88$) with injury and BMI ($U = 112.500, p = .005$). Males group with injuries tended to have greater BMIs than females with injuries. Also, there was a significant association between injured female players and increasing the chance of obtaining elbow injury ($\chi^2(1) = 9.576, p = .002$) with a strong association ($\phi = .425$), and a significant association ($\chi^2(1) = 15.228, p < .001$) between participants with injuries and prevention from carrying out normal activities with strong association ($\phi = .536$).

CONCLUSION

The study showed a prevalence of 15.1% for musculoskeletal disorders (MSD) among amateur padel players in Kuwait. Risk factors associated with playing padel were playing padel for 2-4 hours/week, using special padel shoes, and having a high BMI.

Keywords

Sports injuries, occupational therapy, sports rehabilitation, exercise-related injuries, Tennis

View

Poster

The hidden struggles: Exploring stress, anxiety, and depression on cancer caregivers quality of life in Kuwait: Cross-sectional.

Arwa Alshammari, Ghalyiah Aljubairi, Haya Shabakoh, Salma Almutairi and Esraa Alenezi.

Supervisor: Hamad Alhamad, PhD.

Department of occupational therapy, College of health sciences and rehabilitation, Kuwait university, Kuwait.

Introduction:

Cancer is an illness that involves ongoing treatment and care and has negative consequences for patients and caregivers. A caregiver is someone who has a personal bond with a patient and serves him with unpaid assistance. The caregiving role can result in psychological burden and low quality of life (QoL). The purpose of this study was to explore the prevalence of stress, anxiety, and depression on cancer patients' and caregivers QoL.

Methods:

This was a quantitative, cross-sectional study. A survey, including sociodemographics, the Depression, Anxiety, and Stress Scale (DASS-21), and the Medical Outcomes 36-item Short Form Health Survey (SF-36), was given to the participants. Descriptive statistics were used to analyze the survey and Mann-Whitney test to determine the significant variables and associations between the surveys' components. The ethical approval number is 284.

Results:

The study included 201 caregivers (142 female and 59 male). According to DASS-21, the overall prevalence of anxiety, depression, and stress was found to be 57.6%, 52.7%, and 46.8%, respectively. The study found that females have anxiety 72.6% (n=85) more than males 27.3% (n=32), and using chemotherapy as a patient's treatment has the highest prevalence of anxiety (36.7%, n=43) and depression (40.1%, n=43) compared to other treatments. The SF-36 scales scores showed that the role limitation due to emotional problems scale scored the lowest (40.4643 ± 43.32057), followed by the energy/fatigue scale (47.91 ± 19.329). The association between DASS-21 and SF-36 showed that caregivers who have stress, anxiety, and depression had significant impairments in most SF-36 scales compared with those who don't (P<0.001) except in role limitations due to the physical health and physical functioning scales. In addition to pain and energy scales for anxiety.

Conclusion:

This study demonstrates that providing care for cancer patients has a negative influence on the mental health of caregivers, resulting in depression, anxiety, and stress, which will affect their QoL, due to caregiving requirements. Stakeholders and health care professionals should consider the issues facing caregivers while providing their services, not only for patients.

Key words:

Stress, Quality of life, psychological distress, burden

View

Poster

Exploring students' and health care providers' perceptions around the constructs of the process of rehabilitation: a cross-sectional study.

Dalal N.Alotaibi, Fatimah H.ALazime, Mariam H.Alkandri, Ruaa A.Alrashidi
Supervisor: Feddah M. Edrees, PhD
Occupational Therapy Department, Faculty of Allied Health Sciences,
Health Sciences Center at Kuwait University, Kuwait.

Background: The process of rehabilitation helps individuals with neuro-related disabilities regain their level of ability and maximize their function during rehabilitation. Disability is a general phrase that includes impairments, activity limitation and participation restrictions. Neurological disability is a group of congenital or acquired chronic conditions characterized by functional limitations thought to be caused by damage to the brain or neuromuscular system. In this case, the role of occupational therapist is to work with those living with a disability to manage every day occupations, establish independence, and improve their quality of lifestyle.

Objective: The purpose of this study is to explore the perceptions and knowledge base that help healthcare providers and students identify the constructs of disability, neuroplasticity, and function. In addition to investigate the associations between understanding disability and function based on the rehabilitation process.

Methods: The research study is a cross-sectional design using quantitative method targeting the health care providers, which include students in health care at Kuwait University and practitioners in MOH base in neurology rehabilitation. The study utilized a self-report questionnaire to gather responses in an attempt to explore the constructs of disability, neuroplasticity, and function. The statistical tests used were Kruskal-Wallis H, Mann-Whitney, and Chi Square. The ethical approval number is 289.

Results: 278 participated in the study, including 46 occupational therapists, 185 HSC students, 32 other healthcare practitioners, and 15 academics. The results showed significant difference at ($P < 0.001$) with the level of knowledge base and understanding of neuroplasticity and ($P < 0.05$) with the process of rehabilitation; however, there was no significant difference with the level of knowledge base and understanding of disability and function. There were significant associations between occupational therapists' educational background in understanding neuroplasticity ($P < 0.001$) and the process of rehabilitation ($P < 0.005$). Moreover, there was significant association between healthcare practitioners and age groups in understanding neuroplasticity ($P < 0.005$). There was no significant with other groups.

Conclusion: The findings of this study suggested that various factors are essential for the process of rehabilitation to be successful, including the understanding of the process of rehabilitation by healthcare providers, and their knowledge of neuroplasticity, disability, and function.

Keywords: disability, neuroplasticity, function, neurorehabilitation, occupational therapy, knowledge.

View

Poster

Health Related Factors and Dysregulation of Epigenetic Related Genes in Metabolic Syndrome Trigger Finger Patients and Smoker Trigger Finger Patients: Preliminary Analysis of Patient-Derived Samples

Amna Alshatti, Danah Alfadhli, Fatma Almutairi, Mariam Almutairi Occupational Therapy Department, Faculty of Allied Health Sciences, Kuwait University

Abstract

Introduction: Trigger finger (TF) is a common painful musculoskeletal disorder caused by inflammation and hypertrophy of the retinacular sheath. It has been shown in several studies that there is a significant relationship between TF, metabolic syndrome disease, smoking and health related factors.

Objective: The aims of this study were to investigate the health related factors and analyse the expression of epigenetic related genes and inflammatory genes in metabolic syndrome TF and smoker TF.

Methods: Samples from patients' fingers with symptomatic TF were collected. There were seven groups: healthy control group, carpal tunnel syndrome (as a control for gene expression analysis), TF, diabetic TF, hypertensive TF, dyslipidemic TF and smoker TF. To serve the purpose of this study, the expression of epigenetic related genes and inflammatory genes in metabolic syndrome TF and smoker TF were evaluated by the reverse transcription-polymerase chain reaction (RT-PCR) technique. The Perceived Stress Scale (PSS), Pittsburgh Sleep Quality Index (PSQI) questionnaires, Disability of the arm, shoulder and hand (DASH) and Numeric pain rating scale (NRS) were given to the participants to fill out.

Results: There was a significant increase in the hand dysfunction in the metabolic TF groups and smoker group compared to the TF group ($p < 0.0001$). The stress level of smoker TF group and TF with hypertension group were significantly increased compared with TF group ($p < 0.03$) and ($p < 0.021$) respectively. On the other hand, there was a significant increase in COL-1, COL-II and TNF- α gene expressions of the metabolic TF groups and smoker group ($p < 0.0001$). There was a significant correlation between COL-1, COL-II and TNF- α expressions with hand dysfunction, sleep disturbance, stress and pain ($p < 0.05$).

Conclusion: The extent of hand dysfunction, stress level, pain severity in the TF tendons was highly associated to the level of inflammation and genetic alteration in TF metabolic syndromes and smoker TF patients. Therefore, further rigorous research is needed to investigate the integration of health related factors, gene expression and occupational therapy as a promising approach to the management of TF.

Keywords: Trigger fingers, Metabolic syndrome, Smoking

View

Poster

Empowering Dialysis Center Healthcare Providers with Occupational Therapy Knowledge: Randomized Controlled Trial (RCT) – Part 2

Shaha Alhais¹, Manal Alenezi¹ Alanoud Almutairi¹, Aroub Alotaibi¹

¹Occupational Therapy Department, Faculty of Allied Health Sciences, Kuwait University

INTRODUCTION and OBJECTIVES:

Hemodialysis (HD) treatment may negatively affect the occupational performance and quality of life of individuals with renal failure. The knowledge of healthcare professionals in dialysis centers about occupational therapy (OT) is limited. OT is a client-centered and holistic profession that strives to enhance the health, well-being, and quality of life of individuals of all ages. The study aims to assess the impact of workshops on the knowledge and attitudes of healthcare professionals regarding the role of occupational therapy in dialysis centers.

SUBJECTS and METHODS:

The study is a randomized controlled trial (RCT). A 54 participants were chosen randomly from Mubarak Al-Abdullah Al-Sabah dialysis center in Kuwait using a computer-generated sequence of numbers. Out of these, 27 were allocated to the intervention group (workshop) while the remaining 27 were allocated to the control group (no workshop). The Knowledge and Attitude Toward Occupational Therapy Practice (KAOTP) questionnaire was utilized to assess the healthcare professionals' knowledge and attitude about occupational therapy. Ethical approval was obtained from Kuwait University and Ministry of Health before data collection (288).

RESULTS:

A total of 54 healthcare professionals participated in the study, 41 (75.9%) were female and 13 (24.1%) were male. Of these, 29 (53.7%) were nurses, 20 (37.0%) physicians, and other few healthcare professionals (n= 4, 7.4%) respectively. The test ANCOVA showed significant difference between the treatment ($\mu= 11.422$) and control ($\mu= 8.6130$) groups on the post-test of knowledge about OTP, $F(1,54)= 6.515$, $P= 0.014$. A significant difference was found between the treatment ($M= 8.650$) and control ($\mu= 9.016$) groups on the post-test of attitude towards OTP, $F(1,54)= 0.0158$, $P=0.693$.

CONCLUSION:

The workshop had a positive effect on participants' increased understanding of OTP. The knowledge of different aspects of therapy, such as treatment approaches, assessments, and patient care, significantly improved among the participants.

KEYWORDS:

Educational workshop, Dialysis Center, Rehabilitation Team, Occupational Therapy.

View



Poster



Physical Therapy (PT)



PT Awarded Posters

No.	Name	Title
 PT-1	Shoug Alsuliman, Mariam Hussain, Fotoun Aldehani, Abdulaziz Almutairi, Fahad Dahi	<u>Sarcopenia Prevalence in Retired Older People in Kuwait: Preliminary Study</u>
 PT-8	Kawther Alhawaj, Abrar Alothman, Noran AL- Tayara , Aesha Alazmi, Jumana Alsaffar	<u>The relationship between types of headache and neck pain among students in The Health Sciences Center of Kuwait University</u>

Sarcopenia Prevalence in Retired Older People in Kuwait: Preliminary Study

Shoug Alsuliman, SPT; Mariam Hussain, SPT; Fotoun Aldehani, SPT; Abdulaziz Almutairi, SPT;
Fahad Dahi, SPT; Latifah Alenezi, PT, PhD

ABSTRACT

Introduction: Sarcopenia is age-related condition characterized by loss of muscle mass, strength, and function in older adults. In the past few years there was a significant increase in sarcopenia due to the aging population. There is no established prevalence of sarcopenia in retired elderly in Kuwait.

Purpose of the Study: To identify the prevalence of sarcopenia in retired older people in Kuwait.

Objective: To establish the possible prevalence of sarcopenia in retired elderly in Kuwait and to study the relationship between sarcopenia using SARC-F scale and physical performance tests (TUG, 4 meters gait speed, 5 STS, hand grip) and subjective scales (PSMS, short FESI, FRAIL scale).

Design: Cross-sectional study using convenient sampling.

Method: Fifty-five Kuwaiti elderly aged 65 and older were participated in this study. All participants completed the subjective scales and they were tested using the objective measurements. An ethical approval was obtained from HSC Ethical Committee in Kuwait University as well as from Ministry of Health. Participants who were willing to participate were asked to sign a written consent form and complete the demographic sheet. Data were analyzed using SPSS (version 28).

Results: 27% of the participants had sarcopenia according to SARC-F scale. There was no differences found between two groups (sarcopenic and non-sarcopenic) in TUG and hand grip ($P>0.05$). There is a significant difference between two groups in 5STS and 4MGS ($P<0.05$). There was no significant difference between two groups in terms of age ($P<0.05$). PSMS, FRAIL, the short FESI showed significant differences between the two groups $p<0.05$.

Conclusions: The prevalence of sarcopenia in retired elderly is low in Kuwait compared to other countries. There is a high association of sarcopenia with the subjective questionnaires (PSMS, Short FESI, and FRAIL) and the objective measurements (5STS, and 4MGS), which can help in early identification and prevention of sarcopenia. Further studies using large sample size and Arabic version of SARC-F would be recommended.

Keywords: Prevalence, Sarcopenia, retired, elderly, Kuwait

View

Poster

The Impact of Joint Hypermobility on Musculoskeletal System among AHSC Students

Rawan Al – azmi; SPT¹, Anfal Al – hamly; SPT²,
Maha Al – rashidi; SPT, ³Amal Al – kandari; SPT⁴,
Jenan Boolayan; SPT, ⁵and Shaymaa Al – hajri; SPT⁶, supervised by:
Ms. Aminah Sadeq; PT, MSc⁷

¹Kuwait University, ²Faculty of Allied Health Sciences, ³Physical Therapy Department.

Background: Joint hyper-mobility (JH) is a connective tissue disorder in which excessive laxity is present in a synovial joint ligament. It is a multifactorial condition, most likely related to age, sex, and race. JH has been found to impact the musculoskeletal (MSK) and results in several signs and symptoms, such as pain in multiple joints, clicking joints, fatigue, arthralgia, soft tissue injury, and joint instability. This study aims to investigate the correlation between the presence of JH and MSK pain among Kuwait University female students in Allied Health Sciences aged between 17-24 years.

Methods: A cross-sectional observational design was used, and ethics were obtained from the Kuwait University Ethical Committee. One hundred thirty students (17-24 years) met inclusion criteria and were screened for JH using Beighton Score and evaluated for MSK pain using NMQ.

Results: Out of 130 students participated in the study 51 (39.2%) of them has JH . Female students had a higher incidence of JH (n= 43, 48.9%) than male students (n= 8, 19%). The most frequent hypermobile body parts reported by the students were the left fifth finger (n =6), right fifth finger (n=7), and right knee (n=4). Female students reported more pain in different body parts than male students. MSK chronic pain was slightly evident in a higher proportion of female students (90.7% hypermobile and 86.7% non-hypermobile students) compared to the male students. However, the proportional differences between the gender in both hypermobile and non-hypermobile groups were statically insignificant P=0.234.

Conclusion: This study investigated the relation between JH and chronic MSK among Faculty of Allied Health students. Females had a higher incidence of JH than males, with the fifth finger being the most common region. Chronic MSK was reported by both genders, with the lower back, neck, and upper back regions being the most painful. No significant correlation was found between chronic and acute pain ($p = 1.00$, $p > 0.7$, respectively).

Keywords:

Joint, Hypermobility, MSKP

View

Poster

The Level of Knowledge and The Extent of Using Performance Based Outcome Measures Among Physical Therapists Treating Patients with Neurological Diseases in Kuwait

Sara Altwaitan ¹, Mariam Alotaibi ², Aamnah Aldhafiri ³, Hessa Althaher ⁴, Shaima Alrashidi ⁵.

Supervised by: Mr. Baker Alzoabi

Physical Therapy Department, Faculty of Allied Health Sciences, Kuwait University.

Background

Outcome Measures (OMs) are standardized tools used in physical therapy to quantify a patient's performance or health status. Therapists face challenges applying OMs, and improvisation with the use of certain items and tools can result in modification of standardized criteria for their use. Studies aim to enhance the implementation of OMs in daily clinical practice by studying how to use them accurately and providing techniques to address the knowledge gap. The study will provide insights into the level of knowledge and usage of outcome measures among physical therapists, which could inform strategies for enhancing their implementation in clinical practice.

Methodology

The study used a quantitative, observational, cross-sectional design to investigate the level of knowledge and use of performance-based outcome measures among physical therapists in Kuwait public hospitals. The targeted population was licensed physical therapists treating patients with neurological diseases. A web-based survey was conducted using Google forms/

Results

The results showed that out of 92 participants, only 55 (60%) of them utilized performance-based outcome measures in their clinical practice, whereas 37 (40%) did not utilize them as they confirmed that the main barrier that it is time consuming for both patients and therapists. Therapists who have (6 – 15 years) of experience (66%) are using the PB-OMs more than those who have (1 – 5 years) of experience (24%). Physical therapists who graduated from other universities have higher percentage in using PB-OMs than physical therapists who graduated from Kuwait University. The biggest portion of the participants (44%) use OMs at the admission and discharge, while (35%) use it at different points. Most of the participants (89%) reported that they use standardized PB-OMs to assess different functional aspects of the patient.

Conclusion

The study revealed that physical therapists believed in the benefits of using PB-OMs to direct plan of care, increase examination efficiency, improve patient outcomes, and motivate patients. However, the study also showed a gap between the percentage of PB-OMs use and accurate application of these measures, highlighting the need to spread awareness and increase knowledge about PB-OMs. The study recommends providing educational workshops, unifying methods of using PB-OMs, providing necessary equipment, and making the use of PB-OMs obligatory to facilitate their use. The study also suggests investigating PB-OMs use in private physical therapy practice and comparing it to public hospitals. Overall, the study highlights the importance of using PB-OMs to improve patient outcomes and encourages efforts to address barriers and increase their implementation in clinical practice.

key words

Physical therapy outcome measures, Performance-based outcome measures (PB-OMs), Use, outcome measures with neurological cases, Kuwait public hospitals

View

Poster

Normative Values and Factors Affecting Hand and Pinch Grip Strengths Among Dentistry Students in Kuwait University

Al Jadi Sameera PhD PT, Al-Nami Sarah SPT, Al-Otaibi Sarah SPT, Al-Odhailah Maryam SPT, Al-Shammari Maryam SPT and Al-Sahli Haya SPT

Physical Therapy Department, Faculty of Allied health Science, Kuwait University

Abstract

INTRODUCTION Dentists' work includes precise and repetitive movements for prolonged periods leading to musculoskeletal problems in the hand. Hand and pinch grip strengths are needed to secure a firm grip on dentist's tools. Several factors such as age, gender, body mass index, hand dimensions and the level of physical activity are associated with hand grip strength (HGS) and pinch grip strength (PGS). The aim of this study was to establish the normative values and the factors affecting HGS and PGS strengths among dentistry students in Kuwait University.

METHODS A cross-sectional study where all dental students enrolled in School of Dentistry at Kuwait University invited to participate. Students completed a demographic questionnaire and a pain scale measure. Hand dimensions and grip strengths were measured using a tape measure, Jamar hand dynamometer and pinch gauge following the testing protocol of American Society of Hand Therapist.

RESULTS A total of 55 students participated in this study with a response rate of 91.6% and a mean age = 23 ±1 years. Female participants were 94.5% and the average BMI of the participants = 24.7 ±4.9. The normative values of hand/pinch grip strengths (Kg) were HGS =24.05 ±7.07, LPS= 6.35 ±1.31; PPS 5.74 ±1.25; TTT 3.65 ±1.12. Gender was significantly correlated with HGP, LPS, PPS, and TTT (P= 0.17, P= 0.019, P= 0.017, P= 0.007 respectively). Hand area was also significantly correlated with HGP, LPS, PPS and TTT (P= 0.032, P= 0.008, P= 0.018, P= 0.003). Hand span showed a significant relationship with HGS (P= 0.008), whereas age and LPS were significantly correlated (P= 0.04).

DISCUSSION & CONCLUSION In this study, the HGS and LPS were within the normal scores, while PPS and TTT were weaker compared to the standard values. Gender, age and hand dimensions were factors affecting hand/pinch grip strengths. This study was the first to establish the normative values of HGS and PGS among dental students in Kuwait, which can provide a reference value for clinical use in upper limb rehabilitation. Further studies with larger sample size and gender variation are needed.

KEYWORDS: Dentistry students, Normative Values, Hand grip, Pinch grip, Kuwait

View

Poster

The effect of anxiety on heart rate and blood pressure among PT students prior and post academic exams.

Aldohiyem R., Aldeesan R., Aladwany R., Alnajjar F., and Alajmi N.,

Purpose: This study aimed to investigate the relationship between anxiety and hemodynamic changes among physical therapy students during the examination period.

Methods: A total of 60 physical therapy students from different study years participated. The study design was conducted based on a repeated measurement, where students were tested twice: once during a difficult exam (prior and post) and once during an easy exam (prior and post).

Results: The results supported the first hypothesis, which stated that anxiety will adversely affect physical therapy students' heart rate and blood pressure levels. In addition, the study found that third-year students experienced the highest anxiety levels, while fourth-year students experienced the lowest. The study also covered the impact of the environment and lifestyle habits, such as physical activity, and diet on anxiety levels during the examination period. Interestingly, there was no correlation found between anxiety levels and physical fitness, exercise, or diet. However, the study found that family pressure was a major factor contributing to students' exam anxiety.

Conclusion: Overall, the study highlights the importance of addressing anxiety levels among physical therapy students and suggests the need for further research to better understand the impact of lifestyle habits on anxiety during the examination period. The study emphasizes the importance of providing support to students during the examination period to enhance their performance and well-being.

Keywords: Anxiety, Students, Heart Rate, Blood Pressure, Exam, Lifestyle Habits.

View

Poster

The Effects of Dry Needling on The Surrounding Motor Unit Potential in Normal Subject with Painful Trigger Points

AlOmar F., AlQasba A., Abaza M., Zurba S., and AlFuhaid N.

The use of dry needling has been increasing recently to treat trigger point muscle pain. The pain decreases due to the release of the accumulated acetylcholine under the motor end plate junction.

Methods: Hundred and six (55 male and 51 female) normal subjects with painful trigger points volunteered to participate in this study. The subjects divided randomly into a control and experimental groups. The experimental groups received dry needling in a painful trigger point and electromyography motor unit action potential (MUAP) was recorded before and after the dry needling in three different sites of the same muscle. The control group received dry needle in a none trigger point area and electromyography was recorded before and after dry needling. Numeric pain rating scale was used to measure pain before and after dry needling.

Results: Pain was statistically decreased in both experimental groups after dry needling. MUAP amplitude decreased significantly in site-1 and increased in site-2 and 3 in the experimental groups. Both female and male showed a similar behavior in MUAP amplitude drop and rise. The control group did not show any significant changes before and after dry needling in MUAP amplitude.

Conclusion: The decrease of MUAP after dry needling suggests motor end plate lesion. Repeating dry needling of the same muscle over time might cause less and less motor unit to fire. This loss might lead to muscle weakness over time. The increase in MUAP of the surrounding motor units might be an effect to compensate for the loss of that motor unit. Dry needling dose not treat the main cause of muscle pain, it only silent the pain while the main cause of pain creates another trigger point in another area of the same muscle.

Key words: Motor unit action potential

View

Poster

Functional Performance of Academic Staff Working at Kuwait University -Timed-Up and Go, and Five Times Sit-To-Stand-

Altaf Sudan, Mariam Zaidullah, Hessah Salmeen, Reem Aldhefiri, Maha Alrashidi, Kawthar Khalaf

Authors: Mentor Dr. Maath Alhaddad

Introduction: Timed-Up and Go (TUG) and Five Times Sit to Stand (5-STS) tests are examples of functional performance tests which have been widely used in the clinical settings. Interpretation of the findings of such tests requires the existence of reference values which can be used to evaluate patients' functional status. Although these tests are being used in Kuwait, health care providers, mainly physiotherapists, rely on reference values which were established in western countries. Knowing that the lifestyle and walking habits differ amongst regions, the researchers argue that relying on these existing reference values would lead to inaccurate interpretation of the tests results. Therefore, there is an urgent need to establish reference values of people residing in Kuwait to be used in the interpretation of TUG and 5-STS tests.

Methods: A convenient sample of relatively healthy academic staff working at Kuwait University were invited to participate in a one visit cross sectional study. Study procedure was explained to each participant before signing the consent form and detailed demographic information was obtained. All participants were asked to perform two trials of TUG and 5-STS tests and physiological parameters were taken.

Results: Thirty males and Twenty females (mean (SD) age= 50 (8) participants were recruited. Differences of functional tests across different age groups showed that participants ≥ 60 years old were slower than those < 60 years of age; and no differences were found between participants in the age groups 40s and 50s years old. Females took longer time to complete the TUG and 5-STS tests compared to males, difference was only significant for 5-STS test, $p < 0.08$. The mean (SD) time took to complete the TUG test was 9.1 (1.5) seconds and 5-STS test was 10.8 (3) second.

Conclusion: The study showed that people residing in Kuwait took longer time to complete the TUG (1-2 sec longer time) and 5-STS (5-6 sec longer) tests compared to age-matched group from western countries. These results confirm regional effects on functional tests and calls for bigger studies to establish reference values of TUG and 5-STS tests in Kuwait.

Keywords: Time up and go, five times sit-to-stand

[View](#)

[Poster](#)

The relationship between types of headache and neck pain among students in Health Science Center of Kuwait University

Kawther Alhawaj, Abrar Alothman, Aesha Alazmi, Noran Al-Tayara, Jumana alsaffar, Nowall Al-Sayegh

Department of Physical Therapy, Faculty of Allied Health Sciences, Kuwait University

INTRODUCTION:

Headache is a common symptom in patients suffering from cervical spine disorders. There is no data to help determine if headaches and neck pain are a problem in college students of Kuwait. Therefore, the purpose of this study was to determine the relationship between different headache types and neck pain amongst college students attending the Health Sciences Center of Kuwait University.

METHODS:

Students aged 18-24 were asked to participate in this questionnaire-based cross-sectional study. A structured questionnaire was used to determine the type of headache according to the International Classification of Headache Disorder-III (ICHD-III)(migraine with and without aura, tension type headaches, and others). The questionnaire also collected information on demographic characteristics, academic-related aspects, number and frequency of headaches, neck pain intensity, pain location, medication, and functional limitations according to the Neck Disability Index (NDI).

RESULTS

A total of 233 participants consented and completed the online questionnaire with 199 being eligible for analysis. The majority were female (89%) and the majority reported being under high stress (58%). Most of the participants (70%) reported experiencing headache 1-10 times per month. The temples were the most frequent location of headache (43%) with lack of sleep (79%) and stress (71%) being the most reported trigger. The majority of participants reported experiencing neck pain during the month (81%). Migraine with aura was categorized in 8%(n=16) of participants with headaches, 8%(n=16) non-aura migraine, 4%(n=8) TTH-chronic, 3%(n=6) TTH-infrequent, and 17.1%(n=34) TTH-frequent, and 75%(n=149) other types of headache. Migraine was significantly associated with smoking and stressors reported by participants ($p<0.05$). Tension Type Headache was significantly associated with older participants ($p<0.05$). No correlation between neck pain and headache was found.

CONCLUSION

College students are under a large amount of stress both academically and personally. We found that the great majority of students in our study experience neck pain, headaches, and stress. As physical therapists, we play an important role in the education of our patients regarding their wellbeing including the importance of managing stress, smoking cessation, posture, and maintaining optimal physical health.

KEYWORDS Neck pain, Headaches, Migraine, Neck Disability Index, Tension Type Headache, Cervical Spine Disorders, Wellbeing

View

Poster

Kuwaiti community perspective and beliefs toward traditional practice treatment over physical therapy for low back pain

Sarah Alnawmasi, Rahaf Alotaibi, Mariam Alkanderi, Albandre Alkhaldi and Farah Alqallaf

Supervised by Ms. Anwar AlAdwani

Background: the majority of people in the Kuwaiti community suffer from low back pain(LBP) at some point throughout their life. Those people tend to approach traditional practice as their first choice for treatment since its popular and widely used. In Kuwait there are not enough studies that show the perspective and beliefs toward traditional practice over physical therapy for LBP.

Purpose: The aim of the study is to explore the participant's thoughts and beliefs as a part of the Kuwaiti community towards traditional practice as treatment for low back pain over physical therapy

Methods: A cross-sectional exploratory qualitative study utilizing a survey that has been developed for this research purpose where participants must answer all the questions regarding their thoughts and beliefs toward traditional practices.

Results: Out of the (n=210) participants, (n=34) reported the use of TP and(n=18) prefer it, which is inadequate sample. (n=57) reported the use of PT and (n=44) prefer it. Participants who tried both TP and PT (n=28).

Conclusion: from our data analysis we have found that most of our sample preferred PT in treating their LBP. However, the sample size is inadequate to generalize the findings that we have retrieve from the Kuwaiti society regarding their thoughts and believes toward TP and PT for treating their LBP.

Keywords: Low back pain, traditional practice, thoughts and beliefs, Kuwaiti community.

View

Poster

The Relationship between Brain Training Applications and Cognitive Function among Adults in Kuwait

Mariam Almutairi¹, Nouf Aldosari², Ghala Alotaibi³, Eiman Alshammari⁴, Bashyer Almajedi⁵, SPT

Physical Therapy Department, Faculty of Allied Health Sciences, Kuwait University, Kuwait.

INTRODUCTION

In the past two decades, the accessibility of smartphones has rapidly increased. Thus, several entertaining games that challenge the brain's cognitive function have been created. The creators of these applications claimed that those games can improve cognition, whereas the clinical efficacy remains questioned.

METHODS

Longitudinal observational study. 18 healthy adults (15 females and 3 males) aged 40-60 years participated in the study. All participants were familiar with brain training apps and have used them before. Participants were asked to use these apps for 20-30 minutes per day for 6 weeks. Cognitive function was tested before and after the 6-week period by using MMSE and TMT. The main tools used were: paired-samples t-test, to examine the difference from pre- to post-training, and independent-samples t-test and ANOVA-test, to see the differences among the demographic groups. The two-tailed probability value 'p' <0.05 will be considered statistically significant.

RESULTS

Participants have shown improvements in cognitive function after using the brain training applications for 6 weeks. The average scores on the MMSE have increased significantly among participants ($p < .05$). The times on the TMT have decreased significantly ($p < .05$). The level education of the participants and the type of brain training applications used did not have a significant impact on the cognitive function of our sample. Although participants with a bachelor's degree and participants using the Congfit application had better scores, however, the differences were not statistically significant.

CONCLUSION

The study showed that there is a significant effectiveness of brain training applications on cognitive function in adults aged 40 to 60 years in Kuwait. These promising results can encourage healthcare providers working with adults with mild cognitive impairments to use brain training applications to maintain and/or enhance cognitive abilities. It is important to conduct future studies to determine the long-term impact of brain training apps on cognition in the elderly population.

KEYWORDS:

cognitive function, brain training applications

View

Poster

Prevalence of Vestibular Dysfunction in Typically Developing Adolescents and Young Adults in State Kuwait.

Abdulmohsen Saif, SPT; Bader Alsabti, SPT; Hajer Aldhafeeri, SPT; Hanouf Aldhafeeri, SPT; Kholoud Alajmi, SPT; Wadhah Alotaibi SPT

Dr. Anwar Almutairi

Physical Therapy Department, Faculty of Allied Health Sciences, Kuwait University

INTRODUCTION

The vestibular system is a complex collection of neural structures and neurotransmitters that perform various functions that contribute cognitive abilities and balance. Vestibular dysfunction is associated with different disorders such as cerebral palsy (CP), cytomegalovirus (CMV), and sensory neural hearing loss (SNHL). Several tests can be conducted to evaluate the vestibular function. Cross-sectional examination of TD children and teenagers' vestibular function revealed that many vestibular dysfunction go undiagnosed. Therefore, the aim of this study is to examine the vestibular dysfunction in adolescents and young adult aged between 13-21 years old in the state of Kuwait though full vestibular battery of tests.

METHODS

participants were included if they were aged between 13-21 years old and fluent in English (spoken & written). The exclusion criteria were having a neurological and/or vestibular condition, having surgery in the past 6 months, sustaining a concussion or suffering from an episode of Benign paroxysmal positional vertigo (BPPV) in the past 6 months. Participants went through a comprehensive vestibular screening that included Dynamic Visual Acuity (cDVA), The Head Impulse Test (HIT), Modified Clinical Test of Sensory Interaction on Balance (MCTSIB), The Bucket Test of subjective visual vertical (SVV), and Functional Gait Assessment. Our inclusion criteria are aged between 13-21 years old and fluent in English (spoken & written).

RESULTS

A total of 105 participants (75 female & 30 male) were included in this study. The mean age of the participants was 17.44 years (SD=2.66). For cDVA test score, the mean optotypes was 2.30 (SD=2.66, Range= -4-9), with no positive tests detected. For the HIT, 11 participants (10.48%) had a positive test (i.e. > 2 corrective saccades). MCTSIB and FGA mean scores were 118.67 seconds (SD=4.18, Range= 91-120) and 28.65 (SD= 1.61, Range=24-30) respectively. Finally, Bucket Test of SVV mean score in degrees was 0.77 (SD=0.84, Range= -1.3-3.8).

CONCLUSION

Adolescents and young adults in Kuwait have minimal prevalence of undiagnosed vestibular dysfunction. The main detected vestibular dysfunction were subjective visual verticality and head impulse test. Normative vestibular results of Adolescents and young adults in Kuwait were comparable to the published norms in other populations.

KEYWORDS: Vestibular Function, Adolescents, Young Adults, Assessment

View

Poster

The Prevalence of Musculoskeletal Pain, Pain Location, and Activity-Related Injuries among Undergraduate Physical Therapy Students during their Clinical Rotations

Al-Zahraa Abdulsalam¹, Rawan Ahmad², Ghena Almokari³, Madhawi Aldhafeeri⁴, Muneerah Alhussaini⁵, mentor: Sarah Albahrouh⁶, PT, MSc

¹⁻⁶Physical Therapy Department, Faculty of Allied Health Sciences, Kuwait University

INTRODUCTION

A musculoskeletal injury is a consequence of repetitive strain, overuse, and work-related musculoskeletal disorders that is caused by an incident at work, and these injuries include disorders that cause pain in bones, joints, muscles, or surrounding structures. Previous studies showed that physical therapists, who frequently treat patients, are susceptible to these kinds of injuries (WRMSI), but the gap that needs to be filled is not having previous studies done in Kuwait for undergraduate PT students who sustained MSI/MSP during their clinical training.

METHODS

A descriptive cross-sectional study using an Occupational Injuries in Physical Therapy Questionnaire was distributed online to 157 PT students from KU. (SPSS) software was used to enter, code, analyze, and calculate the data. The tools used were: one-sample binomial test, chi-square test with Fisher's method, independent-samples t-test.

RESULTS

142 students answered which means 90% response rate. 79% of the participants have sustained MSK pain, whereas 39% of them have sustained MSK injuries. The most affected body parts among 3rd year were the shoulder (53%) and wrist/hand (48%), whereas for 4th year were the lower back (72%). For 3rd year students, the highest risk factor in causing the injury/pain was performing manual therapy techniques (57%), while for 4th year, maintaining a position for a prolonged period (by 74%). The most frequent treatment applied to handle the injury / pain was taking rest (80%). The most frequent change in habits was changing the working position (62.9%).

CONCLUSION

MSK pain/injuries was highly prevalent among undergraduate PT students at KU due to maintaining a position for a prolonged period, performing manual therapy techniques, and lifting. This should bring the attention to adopt strategies and guidelines to guide the students toward better musculoskeletal health and to prevent injuries during their clinical rotations.

KEYWORDS:

Musculoskeletal Pain / Injuries, Physical Therapy Students, Kuwait University.

View

Poster

Breastfeeding-related musculoskeletal pain: prevalence and correlation among lactating mothers in Kuwait

Bedor Aldhubaibi, Esraa Alkandari , Fajer Alosaimi , Fay Alosaimi , Maha Alrasheedi
Physical Therapy Department, Faculty of Allied Health Sciences,
Kuwait University Mentor* Mrs. Fareedah Almohri

Introduction

Breastfeeding is one of the essential factors for a baby's proper development. There are some barriers and difficulties that face the lactating mothers. The position of breastfeeding can be physically demanding on most of the body parts. There are possible correlations between breastfeeding positions with musculoskeletal pain in the body which is not widely investigated in previous research. In our study, we are investigating the prevalence of Breastfeeding Musculoskeletal Pain (BFMSP) in lactating mothers in Kuwait. In this research, we are also studying the relationship between different breastfeeding positions and the use of back and arm support during nursing with musculoskeletal pain.

Methodology

A cross sectional survey was distributed to the public through social media applications such as WhatsApp, twitter, and Instagram. Target population was breastfeeding mothers in Kuwait of all ages who are currently lactating. The questionnaire consisted of three parts. First part included questions about sociodemographic information, the second part consisted of questions regarding breastfeeding characteristics and positions, and the third part consisted of questions about musculoskeletal pain and discomfort of the body. The data was analyzed using the R program and the correlations were evaluated using chi-square and point-biserial tests. P values less than 0.05 were considered significant.

Results

The results showed that among 294 mothers, 248 used the cradle hold position as one of the BF positions exclusively or along with other positions. The percentages revealed that most mothers (39%) usually use arm and/or back support during BF session. Among 294 lactating mothers, 245 reported that they experienced pain at least in one part of their body. They also reported that the use of support (arm or back) usually helps in decreasing the pain (57%). Neck, shoulders, and back areas were the most common painful parts of the body with mostly moderate level of pain.

conclusion

Breastfeeding Related Musculoskeletal Pain (BFMSP) is a common problem among lactating mothers in Kuwait. It can affect their life and their daily activities. The use of arm and back support can eliminate this pain.

Keywords: Breastfeeding, Breastfeeding Musculoskeletal Pain BFMSP, Breastfeeding positions, lactating, nursing, pain, ergonomics, support

View



Poster



Radiologic Sciences



RS Awarded Posters

No.	Name	Title
 DR-2	Moudi AlAzemi, Israa AlMousawi, Salsabeel Mohammad	<u>The Use of Nanotechnology in Medical Imaging: The Level of Knowledge of Radiographers and Radiologists</u>
 NM-3	Hessa Bameftah, Dimah Al-Harbi, Dalal Joudeh, Sara Almutairi	<u>The evaluation of image quality of Four- ring Discovery DMI vs. Discovery 710 PET/CT using F18 and Ga68</u>

The effect of patients abstain ingesting drugs prior to Dual Energy X-ray Absorptiometry (DEXA) Scan on bone mineral densitometry (BMD) results

Swira AlHajri, Danah Jaber, Azhar Al-Otaibi, Akram Asbeutah

Department of Radiologic Sciences, Faculty of Allied Health Sciences, Kuwait University, P.O. Box 31470, Sulaibikhat, 90805, Kuwait

INTRODUCTION: Several medications are taken to inhibit bone resorption or stimulate bone formation. This study is focused on to determine the effect to stop or not to stop the medications that inhibit bone resorption or stimulate bone formation in patient preparation prior to Dual energy X-Ray absorptiometry (DEXA) on bone mineral density (BMD) results.

METHODS: 10 patients who underwent DEXA scan and prepared to stop and not to stop the bone treatment drugs within a month are recruited from the PACS system of Al-Sabah hospital from the period of November 2022 to April 2023. T- score of the spine and neck of the femur were compared between both measurements. Paired t-test was performed to determine if there is any statistical significance.

RESULTS: 10 patients 9 females and one male were included in the study. Their Mean±SD age and BMI were 71.9±9.3 and 29.90±5.3, respectively. The Mean±SD of T-score for spine region with drug and without drug was -1.27±0.86 and -1.44±0.91; and for femur -1.63±0.91 and -1.9±0.91, respectively. Despite the difference between with and without drug preparation is minimal but paired t-test showed significant statistical significance ($P<0.001$) for the spine and femur regions of scanning.

CONCLUSIONS: Patients can perform DEXA scan either with or without stopping drugs that inhibit bone resorption or stimulate bone formation. It is preferable not to stop drugs as it improves BMD. Further studies are needed to explore this issue in a large group of patients.

KEYWORDS: Bone mineral densitometry, dual energy X-ray absorptiometry, T-score, osteoporosis, osteopenia

View

Poster

The Use of Nanotechnology in Medical Imaging: The Level of Knowledge of Radiographers and Radiologists.

Moudi AlAzemi¹, Israa AlMousawi¹, Salsabeel Mohammad¹, and Asseel Khalaf¹

¹Department of Radiologic Science, Faculty of Allied Health Science, Kuwait University, Kuwait

INTRODUCTION: Nanomaterials are materials with dimensions lie in the range between 1 and 100 nanometres. They are used in many different applications because of their unique physicochemical and biological characteristics. The number of studies on nanomaterials in medicine are increasing and have shown their promising results from drug delivery systems to contrast agents to diagnostic tools for the highly specific detection of macromolecules. With the help of nanotechnology, the early detection and diagnosis of diseases can be achieved in clinical practice. The aim of this study was to assess the level of knowledge of radiographers and radiologists about the use nanotechnology in medical imaging and the intention to use nanomaterials in health care systems in Kuwait.

METHODS: A survey was distributed among radiographers and radiologists. The survey requested information regarding demographics, knowledge about nanotechnology, and social psychological theory questions using theory of planned behaviour (TPB) to evaluate the intention. The samples t-test was used to investigate the statistically significant differences between certain response categories with p-values <0.05 demonstrating statistical significance.

RESULTS: A total of 55 radiologists and radiographers (n=30, 54.5%) radiographers and (n=25, 45.5%) radiologists, participated in the study. Almost half of the radiographers (46.7%) and radiologists (52%) reported to have no knowledge about the application of nanotechnology in medical imaging. Majority of the participants expressed the desire to learn more about the application of nanotechnology in medical imaging (87.5 % radiographers and 91.7% radiologists). The results showed that most of the participants have the intention to use nanomaterials in their practice. No significant difference was reported between groups in the sum of knowledge and both groups showed positive attitude and intention to use nanotechnology.

CONCLUSION: The results showed that there is a limited knowledge about the use nanotechnology among radiographers and radiologists. The findings also reported their willingness to receive more information about nanotechnology and their intention to use it in their practice. Introducing information about nanotechnology at workplace is critical to reduce the knowledge gap, however, more attention should be paid on how to present the accurate information to better understand the benefits and risks associated with nanotechnology.

KEYWORDS: Nanomaterials, nanotechnology, medical imaging

View

Poster

Work ethics in radiology department between radiographers and patients

Shaymaa Alowaisi, Zamzam Thani, Fatemah Mutlaq, Dr. Mohsen Dashti

Department of radiologic sciences Faculty of Allied Health Sciences Kuwait University

Introduction:

Work ethics should be adhered and practiced by all employees in different fields including radiography. The impact of such practice has direct relationship with patient's satisfaction. This study aims to understand patients' rights, paving the way for a better more professional relationship between radiographers and patients in Kuwait public hospitals.

Method:

This was a cross-sectional descriptive study in which 60 participants (outpatients) in three public hospitals were surveyed to ascertain their satisfaction with the ethical conduct of radiographers and services provided in the department. The study included a specifically designed to reach the aims. The questionnaire in part followed the Likert scale system in order to analyzes the satisfaction of the participants with the ethics practiced by radiographers in different medical imaging departments.

Results:

The results demonstrated high level of satisfaction among all participants when it came to interactions and communication with the radiographers. The results showed that 62% of participants were very satisfied, compared to only 5% who were neither satisfied nor dissatisfied.

Conclusion:

Ethical conducts in Kuwait public hospitals are practiced and the patient's satisfaction is at a high level. The importance of practicing and understanding work ethics is clearly highlighted in the current study.

Keywords: Ethics, Radiology department, Radiographer, patient satisfaction, public hospital, outpatients.

View

Poster

The Use of Scatter Correction Software in Radiography

Hawraa Naief, Amnah Shatteb, Rahaf Alenezi, Dr. Ajit Brindhavan

Introduction: Scatter radiation affects the contrast and results in the loss of clinical information in X-ray images. Anti-scatter grids have been used to overcome this problem at the expense of increased patient dose. Recently, Scatter Correction Software (SCS) has been introduced to correct for scatter radiation in X-ray images. The aim of this study was to investigate the effectiveness of SCS in scatter correction in lumbar spine radiography at different X-ray tube voltages (kV) and the extent of radiation dose reduction to the patient.

Methods: An anatomical phantom of lumbar spine was imaged three times using different kV values in the range of 70 to 109. First set of images were acquired using a grid, the second set without a grid & using SCS and the third set without grid & without SCS. Image quality was analyzed by drawing region of interest (ROI) in soft-tissue (ST) and bone (B) regions of each image using the ImageJ software. The signal-to-noise (SNR) in ST (SNR_{ST}), in B (SNR_B) and contrast-to-noise ratio (CNR) between ST and B were calculated. Statistical analysis was carried out to compare the three sets of images and the effect of kV using non-parametric tests at a significance level of 0.05.

Results: In the images acquired with the grid, SNR_{ST} was 25.6 ± 0.8 and was not affected ($p=0.208$) by the kV value, SNR_B increased significantly ($p=0.032$) and the CNR decreased significantly ($p<0.001$) when kV was increased. When the SCS was used the kV did not have any influence on SNR or CNR ($p>0.114$). The SNR_B and CNR were significantly ($p=0.002$) higher in SCS images compared to grid images for kV values up to 102. The SNR_{ST} was not different ($p>0.279$) in SCS images and grid images. The radiation dose reduction, as measured by the change in mAs, was 3-fold for kV values up to 81 but was not significant for higher kV values.

Conclusion: The SCS is effective in achieving higher CNR in lumbar spine radiographs compared to using grids for scatter correction. The removal of grid can reduce patient doses by 3 times at low kV values.

View

Poster

Competency Level Of Physiotherapy Students To Label Different Anatomical Structures On Plain X-Ray Films

Author: Souad Alrandi, Hayam Nour and Muneera Alajmi Supervised by: Dr. Raed S. A. Saeed
Department Of Radiologic Science, Faculty Of Allied Health Science, Kuwait University

Abstract

Medical imaging is a branch of medicine that plays an important role to diagnose diseases, monitor therapy, and physical treatment planning. It is used by almost all health care professions. Physical therapy is one of those allied health professions, which uses X-ray films for their treatment planning. Studies have shown that physiotherapist have access to some medical imaging information that could be valuable on patient treatment plane. However, not all physiotherapists have confidence on their abilities to interpret this information.

Aim; in this study, we will investigate the competence level of 3rd and 4th year physical therapy students in Kuwait university on labelling different anatomical structures on different X-rays. Furthermore, competence level of radiologic science students will be assessed too and to be compared to physiotherapy students.

Methods; students from both professions where examined by using a certain criteria sheet which contained 25 different questions on labeling different anatomical structures by using 9 different plain X-ray films of lower and upper extremities. Data were collected, and calculations were applied to evaluate the competence level of each specialty.

Results; Using SPSS analysis, results were significant among physiotherapy and radiologic science students on labelling different anatomical structures.

Conclusion; based on the finding of this study, additional lectures or tutorials for physical therapy students are needed to enhance their knowledge in radiologic information especially on labelling different anatomical structures on plain x rays.

Computed Tomography Dose Reduction in pediatric examinations

Abdurahman Al Dabasi¹, Nawaf Al Harbi¹, Noorah Habeeb¹, and Dr. Ghadeer Albaloul¹

Department of Radiologic Science, Faculty of Allied Health Science, Kuwait University, Kuwait

INTRODUCTION:

Computed tomography CT has become the gold standard modality in the radiology department. It produces cross-sectional images of internal body structure. However, the patient will receive a higher radiation dose. Pediatric cell sensitivity to radiation exposure is higher than that of adults so they require special care. The dose is the amount of energy absorbed during radiation exposure and is divided into three categories: absorbed, equivalent, and effective. The volume CT dose index (CTDIvol) and dose-length product (DLP) are the two methods used to measure the radiation dose. Two major radiation protection principles are applied by the international commission on radiation protection (ICRP): Justification and Optimization. ALARA is a radiation protection principle that focuses on shielding, time, and distance. The CT has different parameters that play a role in optimizing scan protocols to reduce the pediatric dose without compromising diagnostic quality. These parameters include beam energy, tube current, pitch, and image reconstruction. This study aims to evaluate the level of knowledge and application of dose reduction techniques and monitoring for CT scanning pediatrics in the Ministry of Health hospital.

METHODE:

A questionnaire was designed for data collection at eleven MOH hospitals responses were collected by Microsoft Forms and analyzed with Microsoft Excel.

RESULTS:

Participants were found to be 54% male and 46% female. The population also comprised 71% radiographers and 29% radiologists. About 74% of participants stated that they received training about the method of reducing radiation dose in pediatric CT examinations. About 38% of radiographers in categories (16–23) years of experience and 100% of radiologists in categories (24–above) of years of experience refuse to reduce image quality while the doses in pediatric CT would be reduced.

CONCLUSION:

Most respondents had training on dose reduction, but there was little agreement about methods of dose reduction.

KEYWORDS:

Computed Tomography, Radiation Dose, Parameters.

View

Poster

The effects of digital imaging on learning radiography

Manar Alharbi¹, Nour Alhamdan²

Haya Haif³, Danah Hussain⁴, Dr Khalida Aljazaf⁵

^{1,2,3,4,5} Department of Radiologic Sciences /Faculty of Allied Health Sciences, Kuwait University, Kuwait

INTRODUCTION:

In 1895 x-ray was discovered, and ever since then medical imaging has been evolving through the years. Once digital imaging was introduced into the field of radiography it changed everything, radiographers and students were affected the most. It has been argued among radiographers whether it was a positive or negative change, but it can't be denied that it made a lot of advancements in the radiology department, such as reducing the processing time of an image, making the positioning of the patient easier and smoother, and increasing the diagnostic quality of the image. All these lead to a significant increase in the departmental workflow, as well as the students' work ethic and the amount of information being learned. The **aim** of this study is to investigate the benefits of using the digital radiography (DR) X-rays modalities on learning radiography. And to analyse the use and effects of digital imaging on the workflow of radiography and on the overall performance of the students.

METHODS:

The questionnaire was distributed to 3rd and 4th students at Kuwait University by sharing the questionnaire link through WhatsApp groups.

RESULTS:

57% of responses from 50 out of 88 of 3rd or 4th year of diagnostic radiologic sciences students, 46 females and 4 males were received. The study showed that 96% are using DR rather than CR because DR is much easier (98%), faster in processing (46%), and in positioning the patient (40%) and has better image quality (14%).

CONCLUSION:

Our research demonstrates the importance of DR in improving the workflow and saving the patient and the radiographers time and developing the performance of the students in their clinical work.

KEYWORDS:

Digital Imaging DR, Workflow, Processing time

View

Poster

Literature review SWOT analysis of PET/CT and PET/MRI, hybrid machines in nuclear medicine

Rawan Dashti, Wejdan Alenzi, Noura Almutairi, Amna Aldahoum, Dr. Amal Al Abdulsalam
Radiology Sciences Department, Faculty of Allied Health Sciences, Kuwait University.

Introduction:

A literature review is an overview of the previously published works on a topic. The term can refer to a full scholarly paper or a section of a scholarly work such as a book, or an article. SWOT stands for Strengths, Weaknesses, Opportunities, and Threats. Its analysis technique for assessing these four aspects for our study.

SWOT Analysis is a tool that can assess you to analyze the study that holding you back, and to devise a successful strategy for the future. Outcome of this research will be a useful reference for other researchers. SWOT analysis strategy been applied to both of PET/CT and PET/MRI, that included the main useful of instrumentation of hybrids and clinical application.

Method:

A literature review is based on recent published research. After that, classified the information by strategy of SWOT analysis. A SWOT matrix is great for collecting information, quadrants lists out the hybrid's strengths, weaknesses, opportunities and threats. After classified the information.

Results:

Our research review shows that the SWOT Analysis and literature review of both PET/CT and PET/MRI have their impacts, takes the benefits of the strength, improve the weakness, and be careful about the threatens, and utilize of the opportunities.

Conclusion:

literature review is to compare your findings to prior studies and to recommend future research directions.

Risk stratification of myocardial perfusion defects in coronary revascularization patients using Rubidium-82 PET Scan

Sara Aladwani, Esraa Alkandari, Noor Alhaidar, Refah Aldaihani, Dr. Ahmad Alenezi
Radiology Sciences Department, Faculty of Allied Health Sciences, Kuwait University.

Introduction and Aim: Astonishingly, PET cardiology techniques supported by advanced imaging technology and radiotracers, such as ^{82}Rb , is rising to be a valuable tool for many years to come, either by stress (exercise) or rest imaging procedure. When a myocardial perfusion scan appears negative, mortality rate considerably low, whereas In the case of severe ischemia, mortality rates increase posing a risk of deleterious complications. Patients in such situation might have coronary revascularization, a therapeutic technique, to avoid cardiac complications. In fact, even after a successful therapeutic procedure, a patient might suffer several post therapeutic side effects such as: heart valve problems and contraction abnormality. The purpose of the study is to determine whether phase parameters and other biomarkers from a baseline study can predict clinical complications before or after revascularization.

Method: The study was conducted on a group of patients underwent ^{82}Rb PET cardiac gated rest and stress scan between 2022 and 2023. All patients who were included in this study had a rest and stress scans and all scans were processed using the same software.

Result: The results of the regression model ($n=26$) showed that 80% of the variance in LVEF could be accounted for by five predictors, collectively, ($F(11,15)=5.3$, $P<3.7*E^{-8}$). Looking at the unique individual contribution of the predictors, the results showed that left ventricle ejection fraction stroke volume (SV), regional and global coronary perfusion of (left anterior descending artery (LAD), left circumflex artery (LCX), right coronary artery (RCA), and total extracting mean and reserve values (derived from rest images) were significantly associated with LVEF in stress image in revascularization patients. Conclusively, those rest parameters are significantly associated with stress LVEF in revascularization patients. This may help physicians to evaluate candidates for cardiac revascularization procedures.

View

Poster

The evaluation of image quality of Four-ring Discovery DMI vs. Discovery 710 PET/CT using F 18 and Ga68

Hessa Bameftah, Dimah Al-Harbi, Dalal Joudeh, Sara Almutairi, Dr. Laila Ghadanfer Radiology Sciences Department, Faculty of Allied Health Sciences, Kuwait University

Background: Positron Emission tomography/Computed tomography (PET/CT) is a growing modality that plays a remarkable role in the development of medical imaging to evaluate physiological and pathological processes. The choice of the appropriate PET system and radioisotope for certain investigation must be based on deep knowledge to obtain the desired diagnostic outcome. This study compares two different PET/CT systems (DMI & D710), and two radionuclides (F^{18} and Ga^{68}), in terms of image quality and the ability to detect small lesions.

Methods: Jaszczak Deluxe Flangeless phantom was filled with F18 and Ga68 using different sphere-to-background ratios of 4:1 and 8:1 with activity concentrations of 7.2kBq/mL and 14.2kBq/mL. PET/CT scans were performed using Digital DMI and Discovery D710 PET/CT. Five-minute acquisition was acquired and used to get partial data of different times (4,3,2.5,2,1.5,1,0.5min). Images were reconstructed using OSEM+TOF +PSF. SUV max contrast, Spatial resolution, COV, and NECR were investigated. Q.clear+TOF was used as a special parameter for DMI, with different β values. Mann-Whitney U test and Wilcoxon Signed-Rank test were used for statistical analysis.

Results: The smallest detected lesion in 4:1 DMI and D710 images of F^{18} were 12mm and 16mm, respectively at 1.5 min/bed, and Ga^{68} was 16mm for both systems at 2 min/bed. The spatial resolution at 2min/bed images in DMI and D710 for F^{18} was 6.4 mm and 7.9mm, respectively, and for Ga^{68} was 7.9mm and 9.5mm, respectively. Overall, the SUV max doesn't show significant change at different time/bed in both systems ($p=0.07$). COV on both systems was $\leq 20\%$, with DMI having significantly lower COV and noise than D710 ($p < 0.05$). The NECR at 7.2kBq/mL for DMI was 72.7 kcps, and 70 kcps for D710. However, NECR% increase at 14.2kBq/mL was 34 and 2.4 for DMI and D710, respectively. Q.Clear showed improved image quality using $\beta=600$ with an SNR gain of $30\% \pm 0.04$.

Conclusion: This study has demonstrated that the new generation Digital MI PET/CT system has improved detectability of small lesions at different time per bed. Florine¹⁸ offers better image quality, and spatial resolution with different activity concentration ratios compared to Gallium⁶⁸.

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