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التقنيات الطبية – التقنيات الحيوية – تقنيات علوم النانو – الرعاية الصحية

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Localizing Bacterial Proteases During Secretion for The Discovery of Novel Antimicrobials

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ABSTRACT

Background. Bacterial secreted proteases are the key factors that contribute the degree of virulence of different pathogens associated with infection. The largest family of proteins secreted from Gram negative bacteria, the Autotransporters (ATs), includes key proteolytic virulence factors. Precisely how these virulence factors are secreted from the bacterial cell and what are the steps involved during their secretion still a mystery. This study set out to shed light on the secretion mechanism of bacterial proteases via observing them using genetically encoded fluorescent tags. **Methods**. The fluorescein arsenical hairpin binder (FlAsH) tag was used in this study. FlAsH tag was genetically inserted via applying a site-directed mutagenesis approach into two independent different function proteases, serine protease AT called EspC secreted from Enteropathogenic Escherichia coli (EPEC) and arginine-specific aminopeptidase of Pseudomonas aeruginosa (AaaA). **Results.** The results of this study have clearly shown that both EspC and AaaA proteases are secreted in a manner reliant on the cell wall synthesis machinery. Secretion was observed a helical distribution along the bacterial cytoskeleton and appears as discrete patches targeted toward bacterial poles. **Conclusions**. The spiral localization arrangement is shared by both proteases which indicates that conserved underlying secretion machinery might be responsible for the spiral secretion of classical ATs from rod-shaped bacteria. These findings provide a step forward in the mechanistic understanding of the secretion of this widely distributed family of proteins that have pivotal roles in bacterial pathogenesis and conserved structural properties that could serve as novel broad-range antimicrobial targets.

Keywords: Autotransporter, Bacterial Cytoskeleton, Protein Secretion, Super Resolution Microscopy.

Effect of Vitamin D Level and Blood Group on COVID-19 Severity

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ABSTRACT

Background and aims. Vitamin D is a hormone that plays a vital role in immune response regulation, including the prevention of inflammation and autoimmunity. Insufficient vitamin D levels may increase the risk of infection. Vitamin D deficiency is not the only factor linked to an elevated risk of COVID-19 infection; recent studies have discovered a link between Sars-CoV-2 infection risk and blood type. The aim of the current study was to examine the association of vitamin D level and blood group type with the severity of COVID-19. **Methods.** A retrospective study was conducted on 224 confirmed COVID-19 patients. They were divided into three groups (asymptomatic, moderate, and severe cases), and serum 25(OH)D concentration and blood group were analyzed for all patients. **Results**. The percentages of males and females were 43.7% and 52.7%, respectively. Disease severity was distributed as follows: 12.5% asymptomatic, 44.6 % moderate, and 42.9% severe. Among the severely ill patients, 39.6% had blood group A and only 9.4% had group O. In contrast, among the asymptomatic patients, only 7.1% had group A and 85.7% had group O. Overall, the difference in the distribution pattern of blood groups in the three severity categories was significant at p = 0.000. The prevalence of Rh positivity among asymptomatic, moderate, and severe cases was 78.6%, 76%, and 60.4%, respectively. **Conclusion**. Insufficient vitamin D levels might influence the severity of COVID-19. COVID-19 patients with blood group A and those who are Rh-positive could be more at risk of developing severe disease .

Keywords. Blood group, COVID-19, Disease **severity, Vitamin D.**

Clinical Characteristics and Outcomes in Diabetic Patients with COVID-19 in Tripoli 2021

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ABSTRACT

Background and aims. The burden of the Severe Acute Respiratory Syndrome, Coronavirus-2 (SARS-CoV-2), which is also known as COVID-19 has been increasing worldwide, and causes many disabilities and deaths. Diabetes is a major risk factor contributing to the severity of illness and mortality from COVID-19. This study aimed to describe presenting, risk factors, and the clinical characteristics and outcomes of diabetic patients with Coronavirus Disease (COVID-19). **Methods**. A descriptive case series study was conducted in the Tajoura Rapid response team. Data was collected from patients with a history of diabetes, after taking verbal consent during May and June of 2021. A specific questionnaire was used to collect information including demographic data, diabetes status, comorbidities, clinical symptoms, blood tests, radiographical assessments, and outcomes of COVID-19. SPSS 21 package program was used for statistical analysis. **Results**. A total of 57 patients with confirmed COVID-19 presentations had diabetes. The majority of these patients are female, 31 (54.4%), and had a mean age (SD) of 64(±11.99) years and a mean duration of diabetes of 1(±6.83) year. Most patients in the study had Type 2 diabetes mellitus (DM), 44 (77.2%), with only 22.8% overall having Type 1 diabetes (n=13). 12.3% of patients displayed evidence of good glycemic control of their diabetes during the 4-12 weeks preceding sickness. 37 patients (64.9%) had other comorbidities including hypertension, ischemic heart disease, dyslipidemia, chronic renal failure, bronchial asthma, and rheumatoid arthritis. 41 patients (71.9%) are treated with insulin. During illness, all patients had a positive PCR result. Most patients, 64.6% (n=37), displayed a positive Chest HRCT scan. 38 patients (66.7%) had positive blood test results. 40 patients (70.2% of patients) were presented with more than three symptoms such as flue like symptoms, dyspnea, productive cough, diarrhea, and vomiting. First Laboratory data of the patients after diagnosis: (Mean ± SD) HBA1C 9.78(±9.93) %, white blood cell 9.38±3.72 (103/µL), lymphopenia 14.12(±10.38) %, D-dimer 3.09 (±9.032) µg/ml, Ferritin 580.31 (±815.75) mg/dl, CRP 81.82 (±92.26) mg/L, urea 42.02(±26.15) mg/dl. 71.9% (n=41) of patients received home management, and 34 (59.5%) needed oxygen therapy at home, 16 patients (28.1%) were transferred to the hospital for deterioration in their condition, and 10(17.5%) of them died due to complications of this diseases. The death rates from COVID-19 infection increase significantly with increasing age of diabetic patients, duration of diabetes- and more in the males. **Conclusion**. Diabetes is considered a comorbidity as diabetic patients that showed more than three COVID-19 symptoms had critical clinical outcomes such as ICU admission and death.

Keywords. Diabetes Mellitus, COVID-19, Comorbidity, Mortality.

Effectiveness of the Mulligan Mobilization Technique in Mechanical Neck Pain

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ABSTRACT

Background and aims. Mechanical Neck pain (MNP) is a public health problem and a common source of disability. The Mulligan Concept is now integral to many manual physiotherapists' clinical practice. Mulligan proposed that injuries or sprains might result in a minor positional joint fault, thus causing physiological movement restrictions. This study aims to evaluate the extent to which the Mulligan Mobilization technique improves pain in patients with mechanical neck pain. **Methods**. A comparative cross-sectional study was conducted at the Altamayez Physiotherapy Center in Tripoli, Libya, from December 2021 to February 2022. The participants were patients with mechanical neck pain recruited using a structured questionnaire distributed to the patients at the center. This study used a self-administered manual questionnaire in Arabic adapted from another similar published study. Patients were treated with Mulligan Technique Therapy intervention (MMT) in the form of passive manipulation and mobilization. **Results**. Twenty participants were recruited, six females and fourteen males recruited from the Altamayez center. Before the intervention and on the visual analogue scale (VAS), 75% of patients reported severe pain intensity. In comparison, it was moderate pain in 20% of the patients and very mild among the last 5%. Post the Mulligan Technique Therapy intervention (MMT), 95% of patients fully recovered, and 5% had very mild pain. On VAS, the worst pain level before MMT is 10 out of 10 for twelve patients and 9 for three patients and 8 for three patients and 7 for two patients. After treatment with Mulligan Technique Therapy, noticeable improvement was found. The pain level decreased to 3 out of 10 for thirteen patients on VAS, 5 for five patients, and 2 for two patients. **Conclusion**. The Mulligan Technique Therapy effectively decreased pain measured by the Visual Analog Scale (VAS) and significantly improved mechanical neck pain among included patients.

Keywords: Mulligan, Neck pain, Visual Analogue Scale.

Persistence of Post- COVID-19 Symptoms in Patients Attending Maitiga Preventive Medicine Center in Tripoli-Libya

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ABSTRACT

Background and aims. Post-acute sequelae of COVID-19 is being diagnosed in patients who developed severe acute COVID-19, but occasionally also in patients who experienced mild or asymptomatic disease. The purpose of this study is to describe the presenting post-COVID-19 characteristics, persistence symptoms and risk factors of COVID-19 patients admitted to and/or visited Maitiga preventive medicine hospital in Tripoli-Libya during the period from November 2020 to November 2021. **Methods**. A cross sectional study was conducted, and included 935 patients had a confirmed diagnosis of COVID-19 by real time PCR, and aged 14 to 100years. Data were collected manually from Maitiga Preventive Medicine Center records between 17th of November 2020 and 30th November 2021 included both admitted and outpatient departments. Data were analyzed by using the SPSS version 21, with some data was extracted from EXCEL. **Result**. The most frequently reported persistence post-COVID-19 symptoms were cough (26.3%); fatigue (24.3%) and dyspnea (24%). The most common prevalent comorbidities were diabetes mellitus (25.9%) followed by hypertension (11.9%) then cardiac diseases(%4.2) . **Conclusion**. In Maitiga center in Tripoli-Libya, diabetic patients are most frequent to be affected by COVID19 infection between other patients of other chronic illness. Post COVID-19 persistence respiratory symptoms –including cough and dyspnea are common to suffer by COVID-19 infected patients followed by fatigue.

Keywords. COVID-19 symptoms, post COVID-19 syndrome, cute COVID-19.

The Clinical Benefit and Outcomes of Remdesivir in Infected Patients with SARS-CoV-2

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ABSTRACT

Background and aims. In the final days of 2019, a virus revealed its appearance to the world; erroneously thought of as a common cold virus, soon became a worldwide pandemonium that took the lives of millions, testing the medication and healthcare systems internationally. Medication, prevention, and treatment protocols were put on top-priority. An antiviral prodrug {Remdesivir}, initially designed for previous pandemics and viruses, was prescribed for hospitalized and non-hospitalized Coronavirus Disease 2019 (COVID-19) patients without acknowledging certain factors that greatly influence the results of this medication. This study aims to highlight such factors that should appropriately put this medication to effective use while preventing its utilization on patients who wouldn't benefit from remdesivir. **Methods**. Constant observations and clinical examinations were conducted on the hospitalized patients for COVID-19 to verify the claims of this study. Patients were categorized and assessed for every factor that may play a major role in this medication's outcomes. **Results**. The current results evidently complied with this study's hypothesis, as they revealed that the age group, underlying medical condition, and their receival of the first dose of remdesivir after the symptoms appeared did play a major role in remdesivir's outcome. The total deaths of the patients who received remdesivir are 52% and only 48% of the patients who received remdesivir were discharged with stable conditions. **Conclusion**. The effectiveness of remdesivir and its outcome decreases to the bare minimum when these factors aren't met. These factors have regulated remdesivir's outcomes dramatically when put into contemplation; furthermore, enhancing every healthcare facility's healthcare system.

Keywords. Remdesivir, Hospitalization, Benefit, COVID-19, Treatment Protocol.

The Effect of Vaccines on Vaccinated and Unvaccinated Patients Hospitalized for COVID-19

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ABSTRACT

Background and aims. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is an exceedingly transmissible and pathogenic RNA virus from the subfamily Orthocoronavirinae. It's caused a worldwide pandemonium; consequently, a pandemic of "Acute respiratory disease", known internationally as "COVID-19". A disease capable of causing lethal or long-term complications, such as liver and kidney impairment, adverse heart problems, and severe blood clots leading to pulmonary embolism or strokes. A disease that predominantly constitutes a threat to humanity. An infection of a fully vaccinated person is given a term referred to as a "Vaccine breakthrough infection"; thus, fully vaccinated people may still be infected if they live in areas with considerable or high transmission of COVID-19. This study aims to assess the effects of different vaccines on those COVID-19 hospitalized patients. **Methods**. Repeated observations and examinations were conducted on the same individuals to detect any changes that might occur over some time. Patients were divided into two categories (vaccinated and unvaccinated) and were checked clinically using various medical devices. **Results**. The outcomes were extraordinarily remarkable, as they disclosed that vaccinations are greatly associated with better clinical outcomes, in terms of shorter hospital stay and better oxygen saturation when compared with those who have not been vaccinated. The unvaccinated patients add up to 85% of the total admission; the vaccinated amassed only 14%. The total number of deaths for COVID-19 patients in Mitiga's Preventive Medical Hospital was less than 25%. 81% of the dead patients were not vaccinated. **Conclusion**. The results indicated that vaccination impacts the morbidity and mortality of those individuals admitted for COVID-19. On these terms, it is recommended that the ministry of health and other health organizations worldwide increase awareness of the superiority and importance of coronavirus vaccines.

Keywords. Vaccine Breakthrough Infection, COVID-19, Hospitalization, Morbidity, Mortality.

Evaluation of Medical Waste Management in Healthcare Centers in Sirte, Libya

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ABSTRACT

Aims. This study was aimed to assess the management of medical waste in healthcare centers in the city of Sirte (Al-Zafaran Health Center, Omar Al-Mukhtar Health Center, and the Third Residential District Health Center). **Methods**. A descriptive cross-sectional study was conducted from March to April 2022 on a sample of 30 medical and paramedical staff to evaluate their medical waste management during their daily work. Data was collected and further analyzed using SPSS. **Results**. The study reported lack of proper management of medical waste within the health centers, and the process of separation and disposal of medical waste is not well done. **Conclusion**. There is a necessity of organizing a frequent seminars and lectures on the proper management of dealing with waste medical.

Keywords. Medical Waste, Management, Medical Staff, Health Centers, Sirte**.**

Could the Imbalance Between Annexin-A2 and Annexin-A5 in Women with A Past-History of Pre-Eclampsia Contributes to the Development of Cardiovascular Events Later on in Life?

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ABSTRACT

Background and aims. Generally, pregnancy is associated with well-described physiological changes in the haemostatic processes. However, it is known that a subpopulation of women with preeclampsia (P-EC) are at increased risk of developing a hypercoagulable state, which may predispose them to thrombotic complications and cardiovascular diseases later on in life. Reduced pro-fibrinolytic activity of Annexin-A2 and decreased anticoagulant activity of Annexin-A5 have been implicated in the increased risk of thrombotic events associated with P-EC. This study was aimed to evaluate the changes in the maternal plasma levels of annexin A2 and annexin A5in women with a history of pre-eclampsia after several years since their delivery. **Methods**. In the present retrospective case-control study, we investigated plasma Annexin-A2 and Annexin-A5 levels in 5 healthy volunteers and 66 women who had P-EC at interval years including 2007, 2012 till 2016. Blood samples were collected in ethylenediamine tetra-acetic acid vacutainer tubes and centrifuged at 3000 rpm for 10 minutes, at room temperature. Plasma was immediately isolated and transferred into 250 µl aliquots, and stored at -86°C for batch-wise analysis for Annexins-A2 and Annexins-A5, using commercially available Enzyme-Linked Immunosorbent Assays. For each assay, a previously unthawed aliquot was used. **Results**. Plasma Annexin-A2 levels were higher in the P-EC group compared with the controls, conversely higher plasma levels of Annexin-A5, were observed in the control group. There was no statistically significant difference in Annexin-A2 or Annexine-A5 levels between the P-EC group and controls. We observed a significant positive association between Annexin-A2 levels with the number of years post-delivery ($r = 0.254$; $p = 0.039$), while Annexin-A5 levels showed a negative yet significant association with the number of years postpartum ($r = -0.3$, $p = 0.015$). **Conclusion**. For the first time we report a degree of imbalance between Annexin-A2 and Annexine-A5 in pre-eclamptic women postpartum. This imbalance may contribute to the development of thrombotic compilations seen in women with P-EC and may predispose them to cardiovascular disease later in life. In addition, the present work reinforces our earlier findings in relation to the raised Tissue Factor/Tissue Factor Pathway Inhibitor ratio in women with P-EC.

Keywords. Annexin-A2; Annexin-A5; Haemostasis; Pregnancy; Pre-eclampsia; Postpartum; Cardiovascular disease

The Correlation Between Vitamin D Deficiency and Calcium, Phosphorus, Alkaline Phosphatase in Preterm Libyan Infants

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ABSTRACT

Background and aims. Vitamin D is important for maintenance of calcium and phosphorus homeostasis and bone mineralization. Metabolic bone disease due to vitamin D deficiency is a common clinical problem in preterm infants. Vitamin D (Vit D) is a crucial component for the regulation of serum calcium, phosphate, and alkaline phosphatase (ALP). The present study was aimed to assess the status of these biochemical parameters in subjects with different degrees of vitamin D deficiency. **Methods**. The serum samples from the preterm infants were collected from Neonatal Intensive Care Unit of Althawra hospital center, Al Beyda, Libya between February to July 2019. Two groups of infants were studied; preterm infants (N=62) and control group full-term infants (N=34). The concentrations of serum calcium, phosphorus, alkaline phosphatase (ALP) and 25OH-Vitamin D from cord blood or venues blood from preterm and full term infants were measured by Enzyme immunoassay and routine methods respectively. **Results.** A total of 62 preterm neonates were taken for the study (median gestational age 32 weeks (28- 36) weeks, median birth weight 1960 gm (900 – 2800 gm), median calcium 8.7 mg/dl (p=0.000), median phosphorus 4.1 mg/dl (p=0.584), median alkaline phosphatase (ALP) 458 U/L (p=0.008), and median vitamin D level 13.6 ng/ml. Our observations showed that very severe vitamin D deficiency was 9.7 % (< 5 ng/ml), sever vitamin D deficiency was 19.4 % (5 – 10 ng/ml), vitamin D deficiency 45 % (10 – 20 ng/ml) suboptimal vitamin D was 25.8 % (20 – 30 ng/ml). When we compare preterm to control (full-term infants) we found the p-value is very highly significant (p<0.05) in all the parameters [Vitamin D (p=0.00), Ca (p=0.007), PO4 (p=0.036) and alkaline phosphatase (p=0.00)]. **Conclusion.** There were insufficient of vitamin D in the all-preterm infants. There was also inverse correlation between the tested biochemical parameters with vitamin D deficiency. Therefore, importantly, the three parameters used in this study draw the importance of increase in the serum alkaline phosphatase (ALP) level that could be used as an essential marker and tools for the diagnosis of vitamin D deficiency in the clinical practise.

Keywords. Vitamin D, Haemostasis, Pre-term, Full-term, Deficiency

Detection of Genetic Variants of *BRCA1* Gene in Libyan Breast Cancer Patients

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ABSTRACT

Background and aims: Breast cancer (BC) is the most frequent cancer among women, impacting 2.1 million women each year, and also causes the greatest number of cancer-related deaths among women (WHO). BC is an uncontrolled growth of breast cells, occurs as a result of mutations, or abnormal changes, in the genes responsible for regulating the growth of cells. Estimations show that about 5-10% of BCs are linked to gene mutations passed through generations of a family. *BRCA1* gene is one of the most common genes that greatly increase the risk of breast and ovarian cancer. The aim of the research was to detect genetic variants in the target region on exon 11 of *BRCA1* gene in Libyan BC patients. **Methods:** Blood samples were withdrawn from 53 Libyan BC patients at National Cancer Institute, Misurata. 18 cases were selected for this research, these cases are for patients either have a family history of BC or had a secondary cancer along with BC. DNA was extracted and its quality and quantity assessed by NanoDrop spectrophotometer and gel electrophoresis. Polymerase chain reaction (PCR) was performed with specific primers in exon 11 for *BRCA1* gene, and Sanger sequencing was performed to detect genetic variants in the target region on exon11 of *BRCA1* gene. **Results:** The sequencing of the fifteen patients tested positive for *BRCA1* mutations showed twelve different mutations. Eleven of them were frame shift mutations, and one was missense mutation. Four out of twelve mutations were previously identified in other researches around the world, and eight were expected to be new mutations. Three out of twelve mutations frequently appeared in the cases, as follows: c.3531delT (61%), c.3548A>G (33%) and c.3544dupC (22%). **Conclusion:** These mutations that founded in the study, especially the new ones, are considered a dangerous indicator for the women is community in Libya and for patients with BC, as they are likely to be passed on to next generations or lead to second cancers.

Keywords. *BRCA1*, Exon11, Mutation, Sanger Sequencing, Breast Cancer

Hepatitis B Vaccine and its Relevant Factors Among Dentists in Libya

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ABSTRACT

Background and aims. Hepatitis B infection is an occupational hazard disease, non-immunized dentists are a high-risk group to acquiring HBV from their work place, however non-responder dentists remain susceptible to infection and the immunization status among dentists were not reported previously in Libya**.** The current study was aimed to assess the hepatitis B vaccination status through determine the vaccine coverage rate and evaluate efficiency of HBV vaccine among dentists in Libya. The study also aimed to evaluate the correlation of personal factors associated with serologic evidence of the immune. **Methods:** A cross-sectional study was conducted on 300 dentists from different dental clinic in Libya, The Hepatitis B Surface Antibody (HBsAb) test was done using ELISA method. antibody titer≥10 IU/ml was as HBsAb-positive. data were analyzed using SPSS program version 19. **Results**. Out of 300 dentists, 95 (31.7%) were males, 172(57.3%) having received the three doses of the vaccine. The study showed that the efficacy of hepatitis B vaccine is (84.3%). Although, there were a large number of vaccinated dentists in Libya, the percentage was less than what was expected, as Libya offers the national program of viral hepatitis vaccination, which provides free hepatitis B vaccination to all HCWs. Most of dentists did not measure anti HBs level and a significant number of them has AntiHBs <10 mIU/ml and remain at risk to acquire the infection from their work place. **Conclusion:** There is a need for an extensive educational program to get dentist vaccinated, because a significant percentage of them is not protected and are at risk to infection. Therefore, it is crucial to check post vaccination HBsAb in all dentists.

Keywords: Hepatitis B, Vaccination, Dentists, Libya

The Efficiency of Carbohydrates Counting Program on HbA1c Levels in Diabetic Libyan Children

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ABSTRACT

Background and aims. Carbohydrate counting program (CCP) is a meal-planning tool for patients with type 1 diabetes (T1D) treated with a basal bolus insulin. Doses of multiple daily injections or continuous subcutaneous insulin infusion are taken based on an awareness of foods that contain carbohydrates. The bolus insulin dose needed is calculated according to the total amount of carbohydrates consumed at each meal (the insulin-to-carbohydrate ratio). This study hypostasized that CCP have positive effects on metabolic control and on reducing glycosylated hemoglobin concentration (HbA1c). Moreover, CCP might reduce the frequency of hypoglycemia. In Libya diabetes mellites in children still treated by fixed amount of insulin. Therefore, this study aimed to evaluate the efficiency of CCP on HbA1c levels in pediatrics children at Libyan hospital. **Methods**. Forty-five children between 2-18 years old from Aljala hospital -Tripoli were observed for three months for there HbA1c levels after adapting CCP. The level of HbA1c before and after the program were reported. In addition, several factors that may cause a significant impact on the efficiency of CCP such as place of residency, BMI, gender, and age, and other associated diseases were observed as well. Collected data was statistically analyzed. **Results**. The results showed that significant decrease in the HbA1c levels among children who followed the CHO counting program were reported. Besides, 20% of participants had deficiency of vit D. 59% of participants were from outside Tripoli. Most participants were from Ain-Zara. Female had the highest HbA1c and female had the highest BMI as well. The average of HbA1c levels for all patients reduced from 10 to 7.5 after adapting the CCP program. **Conclusion**. In conclusion, these results lightened up that the CCP program is a successful treatment protocol to avoid children having future troubles regarding high HbA1c levels complications. All diabetic people should follow this program as soon as possible. Further investigation is required regarding the influence of other factors on the efficacy of CCP.

Keywords: Carbohydrates Counting Program, HbA1c levels, diabetic, Libyan children.

Epidemiological Profile of Accidental Poisoning in Children, Retrospective Study on Benghazi Children's Hospital, Libya, 2022

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ABSTRACT

Background and aims. Poisoning in childhood is a significant public health problem globally. Most poisonings that occur in young children are unintentional and seem to be mainly accidental. This study aimed to determine the epidemiological, clinical profile, and outcomes of accidental poisonings in children up to 15 years at Benghazi Children's Hospital. **Methods**. This observational retrospective study included 232 children up to 15 years who were admitted with acute poisoning to the general ward or ICU (if comatose or unstable) of Benghazi Children's Hospital, from the 1st of January to the 31 of December 2021. Complete epidemiological and clinical data were recorded and analyzed by using SPSS version 26.0 software. **Results**. Out of 232 children admitted for poisoning (56%) were drug poisoning, while 44% were non-drug poisoning. Children, less than 3 years were more liable for poisoning (61.2%). A strong correlation was found between age group and type of poisoning. Male were poisoning more than females in all age groups. The majority of cases (90.5%) were living in urban areas. Significant differences were found in residences of the living. Also, a significant correlation was found between the types of poisonings and residences of the living. Almost all cases (93%) were due to accidental/ unintentional poisoning. More than 88.3% of the cases were exposed to poisoning through the oral route. Among 130 drugs poisoning cases anti-psychiatric drugs (20.4%) was most frequent followed by CVS drugs (18.6 %) then analgesic and antipyretic drug (13.5%), the results showed that there was a strong relationship between the types of drug and age groups. Furthermore, 102 cases were non-drug poisoning; thirty-one percent of children were poisoned by cannabis (15.5%) the next one was kerosene and petroleum product (9.9%), followed by (6%) scorpion sting, then (4.7%), toxin chlorine gas, while (4.3%) corrosive household cleaning, and (3.4%) was pesticide (organophosphorus, insecticide, rat poisoning). Overall, 29.3% of drug poisoning children were asymptomatic, whereas all non-drug poisoning children were symptomatic most of them with mild symptoms. The most common symptoms in non-drug poisoning were gastrointestinal GIT symptoms (49%) with neurological (36%) or respiratory symptoms (22.5%) while in drug poisoning; neurological CNS symptoms (27.6%) were the most common ones. The majority of cases were discharged in a good condition, only one case died of anti-psychiatric drug poisoning. In conclusion, accidental poisoning's highest incidence was noticed among children below 3 years old and the mortality rate was 0.43%. Many accidental toxic exposures could be avoidable by preventive measures. The cornerstone of management for children's poisoning is appropriate public education and raising awareness among parents about safe practices of storing medications and toxic household chemicals.

Keywords. Epidemiological, Accidental Poisoning, Children, Libya

Vitamin B12 Deficiency in Type 2 Diabetes Patients Using Metformin

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ABSTRACT

Background and aims. Metformin is the first line medical therapy for type 2 diabetes, the mechanism of metformin remains as yet incompletely understood but recent studies have reported a decrease in vitamin B12 in patients treated with Metformin. This study was aimed to evaluate vitamin B12 status in type 2 diabetic patients (T2DM) treated with Metformin compared to a control group, and also to evaluate the correlation between the vitamin status and the dose, the frequency of taking Metformin, as well as with the age. **Methods**. This was a cross-sectional study conducted in T2DM patients, 150 patients on Metformin and 150 patients without Metformin (control group). **Results**. The average duration of taking Metformin is 10.05 +/- 6.58 years and the average dose is 691.30 +/- 198.41 mg/day. The serum level of Vitamin B12(Cobalamin) is significantly lower in patients taking Metformin (216.6 pg/ml versus 555.1 pg./ml, p=0.001). About 31of 150 diabetic patients on Metformin (20.67%) presented a vitamin B12 deficiency (level < 200 pg./ml) versus a 7 without Metformin (4.67%). Cobalamin deficiency (rate between 200 and 300 pg/ml) was noted in 50 patients (33.33%) of patients on Metformin versus 16 (10.67%) without Metformin. **Conclusion.** The current study reported a relationship between metformin and vitamin B12 deficiency in type 2 diabetic patients.

Keywords. T2DM; Metformin; Vitamin B12 deficiency.

Libyan Medical Students' Knowledge, Attitude and Barrier Towards Clinical Research

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ABSTRACT

Background and aims. Undergraduate involvement in research necessitates a better understanding of their potential as well as the anticipated barriers they will face. The objective of this study was to assess medical undergraduates' knowledge, attitudes, and research barriers. **Methods**. A cross sectional study included medical students from the University of Tripoli, Libya, where a self-administered questionnaire was used to evaluate the students' knowledge, attitudes and perceived barriers. Filled questionnaires were received from the medical undergraduates of different faculties of medical specialties. Data were analyzed using descriptive statistics. **Results**. A total of completed questionnaires were received from 120 undergraduate medical students. The overall result of knowledge among them was encouragingly good (51%). Majority of students taught that the main barriers in conducting research were lack of awareness (71.7%), lack of self-interest (56.7%), lack of faculty encouragement for research (84.2%), insufficient time (59.2%), and the difficulty in obtaining resources and data for research (68.3%). **Conclusion**. Participants in the current study showed a moderate knowledge level with associated positive attitudes towards research. This attitude needs to be transformed into better knowledge and appropriate practice

Keywords. Research, Knowledge. PubMed, Medical Students.

Prevalence of Anemia and Platelet Deficiency Among Pregnant Women in Brack Al-Shati District in Southern Libya

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ABSTRACT

Aims. The purpose of this study is to identify the prevalence, severity, underlying causes, and contributing variables of anemia, platelet shortage, and related conditions. The study involved 197 female patients at Brack General Hospital, whose ages varied from 16 to 49 years. **Methods**. To detect blood variations, blood samples were obtained, and a complete CBC blood analysis was performed. The samples under consideration had anemia and platelet deficiencies, and their grades and kinds met WHO requirements. **Results**. The findings revealed that the prevalence of anemia among women was 49.7%, which was higher in the age range of 28 to 39. Additionally, the incidence of anemia was mild in some cases (58%), average in others (37%) and severe in some cases (5%), including microcytic hypochromic anemia (56%) and microcytic normochromic anemia (3%). Pregnant women were more likely to have normocytic hypochromic anemia (7%) and platelet insufficiency (2%), which were both more common and whose incidence rose with the fetus's age and peaked in the third trimester (53%), respectively. According to this study, pregnant women in Brack region had a significant prevalence of anemia and platelet insufficiency. **Conclusion**. According to the study, pregnant women should consume vitamins, proteins, and meals high in iron while avoiding items that inhibit the absorption of iron. Moreover, pregnant women should be educated on the value of self-care, and blood parameter levels, particularly the level of hemolytic, should be monitored as the pregnancy progresses.

Keywords. Anemia, Thrombocytopenia, Pregnancy, platelet, hemoglobin.

Antidepressant-Like Effects of *Camellia Sinensis* Leaf Aqueous Extract in A Mouse Model

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ABSTRACT

Background and aims. Depression is a mental illness characterized with distressed mood and reduced social activities. *Camellia sinensis L.* (the green tea) is a species of evergreen shrubs of the family Theaceae. The leaves are used traditionally to produce caffeinated tea. The present study was aimed to evaluate the antidepressant effect of *C. sinensis* leaves aqueous extract in mice. **Methods**. Two depression mouse models, forced swimming test (FST) and tail suspension test (TST) were used. The extract and imipramine (60mg/kg) were administered i.p to mice (n=6 each group). **Results**. In FST, compared to control group, mice treated with *C. sinensis* extract (1 and 2 g/kg, i.p) showed significant reduction in total immobility time by respectively, 73.3% and 58%. Furthermore, mice exhibited enhanced time spent in swimming behavior exceeding 50% ($P<0.05$) and threefold increase in climbing tries to cylinder wall (not significant). In TST, mice injected with *C. sinensis* showed insignificant delay, 20 sec vs. 10 sec control, in first time motions, to indicate a stat of depression. Moreover, mice exhibited significant reduction in immobility time by 66.9% compared to control mice. This effect was not associated with alteration in the locomotor activity of mice, evaluated by open field test. Conclusion. The present findings demonstrate that *C. sinensis* aqueous leaf extract has antidepressant-like effect that may have a potential clinical value. The effect of *C. sinensis* was similar to that produced by imipramine, the positive control. The mechanisms through which *C. sinensis* leaf aqueous extract produce antidepressant-like effects needs further investigation.

Keywords. Camellia Sinensis, Antidepressant-Like Effects, Leaf Aqueous Extract.

Trace Elements in Blood and Seminal Plasma and Their Relationship to Sperm Quality in Infertile Men in Libya

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ABSTRACT

Background and aims. Male factor infertility is a contributing factor in up to 50% of infertile couples. Increasing numbers of couples undergoing treatment with assisted reproductive technology and reports of a possible decline in male fertility suggest that lifestyle changes and occupational and environmental exposure might impair semen quality. Heavy metal exposure has been related to impaired semen quality. The aim of this study was to assess the levels of trace elements Lead (Pb (, Zinc)Zn(, Cadmium)Cd(, Manganese)Mn(, Nickle (Ni(, Iron)Fe(, Chromium)Cr) in whole blood and in seminal plasma in men of infertile men, and to determine the relationship between semen quality and trace element concentrations in semen and whole blood. **Methods.** The study was conducted between 2017 and 2018. Blood and semen samples were collected from 49 men attending Tripoli National Infertility Centre in Libya for infertility treatment despite regular unprotected intercourse for at least 12 months without conception. Demographic data were obtained at the time of sample collection. Semen volume, concentration, morphology and motility were determined by standard techniques. Seminal plasma specimens were classified into three groups (normospermia, oligospermia, and azoospermia) according to the World Health Organization (WHO 1999) guideline for sperm concentration. Inductively coupled plasma-optical emission spectrometry (ICP□OES) was used to determine seven trace elements in blood and semen. The semen quality analysis results were compared with the results of the metal concentration analyses. Statistical analyses were performed using (SPSS) program, version 16. Parametric tests were used as appropriate. **Results**. Significant differences were found among the three groups for Blood Cr and semen Cd of the metals analyzed. The metal concentrations in the specimens were then compared with the sperm concentration, motility, morphology and volume. The seminal levels of Mn, Cr and Ni were directly correlated with sperm motility and morphology. Cd showed strong correlations with sperm concentration and semen volume in infertile men. **Conclusions**. Measurement of blood trace element concentrations is not useful as an indicator of elemental status. Seminal plasma levels of Mn, Cr and Ni are directly correlated with sperm motility and morphology.

Keywords. Trace Element, Male Infertility, Sperm Quality, Seminal Plasma.

Effects of Electromagnetic Radiation of a Mobile Phone on the Behavior of Mice, The Levels of Aspartate Aminotransferase and Lactate Dehydrogenase

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ABSTRACT

Background and aims. Globally, development in technology did improve our life style in different fields. This development requires the use of special devices that emit ionized and non-ionized radiation. Hence, the widespread use of mobile phones has led to increased people attention to the impact of electromagnetic radiation (EMR) since many studies have indicated a connection between EMR exposure and several diseases. Therefore, the present study was aimed to investigate the effects of EMR on the concentration of Aspartate aminotransferase (AST) and Lactate dehydrogenase (LDH) and behavior of mice. **Methods**. Albino male mice were exposed to EMR (900-1800MHz) for 3 months (1hr/day; 3hr/day; 5hr/day; n = 5-7). After two weeks' behavior of each mouse was observed using Irwin primary test. Pentobarbital sodium (45mg/kg, i.p) induced sleep in mice was examined after four weeks. Whereas, induction of general anesthesia by ether was evaluated six weeks post exposure to EMR. After 3 months, all mice were sacrificed and the levels of AST and LDH were measured spectrophotometry. **Results**. Compared to control group, although mice exposed to EMR showed no changes in their normal behavior, they exhibited insignificant reduction in onset of sleep and short duration of sleep induced by pentobarbital respectively, by 39.4% and 22.8%. In addition, mice showed insignificant increase in time spent under anesthesia by 56.7% induced by inhalation of ether. Moreover, our study showed that longer time exposure of mice to EMR per day induced significant increase in level of AST by 124% than that of control mice. While, level of LDH in serum was significantly decreased by 39.8% after exposure to shorter time, 1hr/day/3months. **Conclusion**. The present study indicated that exposure to EMR released from a mobile phone may lead to bio-vital changes in mice.

Keywords. Electromagnetic Radiation, Mobile Phone, Mice, Aspartate Aminotransferase, Lactate Dehydrogenase.

Pregabalin Abrogates the Effects of Fluoxetine in A Mouse Model of Depression

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ABSTRACT

Background and aims. Pregabalin is a third generation antiepileptic drug, with analgesic and anxiolytic properties. Several studies have indicated that antiepileptic drugs could influence the beneficial effect of antidepressant drugs. Therefore, the present study was aimed to investigate wither co-administration of pregabalin might improve/abrogate the effects of the selective serotonin reuptake inhibitors, fluoxetine, in mice. **Method**. Mouse forced swimming (FST) and tail suspension test (TST), as models of depression were used. Mice (n=6 each group) were pre-treated with pregabalin (100mg/kg, i.p) and after 30 minute mice were injected with fluoxetine (5 mg/kg and 20 mg/kg, i.p). **Results**. In FST, compared to control group, fluoxetine (20mg/kg) induced respectively, significant decrease by (71%) and increase by (64%) in immobility duration time and active swimming. Whereas, fluoxetine (5mg/kg) and pregabalin alone produced insignificant effects. Pre-treatment of mice with pregabalin significantly abrogates the anti-immobility behavioral activity induced by fluoxetine in FST (75% increase) and in TST (80% increase). This effect coincides with significant reduction in the active swimming by 85% ($p<0.05$). Moreover, co-injection of pregabalin did abolish mice climbing trials to cylinder walls by 60% ($p>0.05$). **Conclusion**. Our results clearly demonstrated that pregabalin did abrogate the antidepressant effects of fluoxetine in mice.

Keywords. Pregabalin, Fluoxetine, Mouse Model, Depression.

Association between Red Blood Cells Distribution Width and Microvascular Complications in Diabetes Mellitus in Tripoli, Libya

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ABSTRACT

Background and aims. Red cell distribution width (RDW) is a marker of increased risk of diabetes complications. Patients with diabetic nephropathy (DN) are often found to be with a high level of RDW. The main goal of this study was to measure red blood cell distribution width within diabetic group participants and investigate the relationship between red blood cell distribution width and microvascular complications in diabetes mellitus in Libyan patients. **Method**. A descriptive comparative study was conducted from July 2019 to November 2021. Patients with microvascular complications of diabetes (nephropathy, neuropathy & retinopathy) were enrolled at the Diabetes & Endocrinology Center and Kidney Clinic of Tajoura Hospital. The patients were suffering from microvascular complications of diabetes as nephropathy, neuropathy, and retinopathy groups. Healthy controls in the control group, and RDW was served as the main observational factor. Data were collected using a questionnaire to obtain the participants' general characteristics such as age, gender, smoking, and duration of diabetes. The total number of participants was 207 individuals (150 patients and 56 healthy males and females). **Results**. The group of the study population included 56 (27.1%) healthy individuals, 80 (38.6%) nephropathy patients, 10 (4.8%) neuropathy patients, and 61(29.5%) retinopathy patients. The mean age of healthy people in the nephropathy, neuropathy, and retinopathy group was significant statistical relation with a p-value of 0.022. The mean BMI (body mass index) in the healthy people and the patients group showed no statistically significant difference (P value =0.132). The mean RDW of the participants in the healthy group was (12.9 ± 0.7), while the mean RDW for those belonging to the nephropathy group was (15.2 ± 2.1), and by using the independent samples T-test, there was a highly statistically significant ($P < 0.001$), while the mean RDW for those belonging to the neuropathy group was (12.4 ± 1.7). Using the Mann-Whitney test, there was no statistically significant ($P = 0.061$) between the two medians for both groups. the mean RDW of the healthy group was (12.9 ± 0.7), and the mean of the RDW of the retinopathy group was (13.1 ± 1.0). Additionally, the independent samples t-test didn't show a statistically significant difference between the means of the two groups ($P = 0.352$). **Conclusions**. This study demonstrated that higher RDW values are associated with increased diabetic nephropathy in a nationally representative sample of adults with diabetes microvascular complications in Libya.

Keywords. Red Cell Distribution Width, Diabetic, Nephropathy, Neuropathy, Retinopathy.

Breast Cancer Screening Awareness and Practice among Women in Western Libya

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ABSTRACT

Background and aims. Recent global cancer statistics indicate rising global incidence of breast cancer and the increase is occurring at a faster rate in developing countries. Health behavior may be influenced by level of awareness about breast cancer. This study was aimed to assess the awareness level of BC symptoms among women, compare the awareness level between the two major areas in Libya and identify the factors associated with good awareness of BC symptoms. **Method**. A cross-sectional community- based study was conducted among rural women in Tripoli, Libya in the period from 1st of January to March 2022. A total of 100 women were randomly included in the study. A questionnaire included socio-demographic characteristics and information related to their knowledge about breast cancer were distributed. The study population was women in western Libya aged 18 years and over. **Results**. A total of 100 women attending at Tripoli University Hospital, aged from 18-65 years were included in the study. The majority of women (89%) who have a good knowledge were 40 years old and over. Married women were the largest group among the study member and their percentage was 83% and the western region from Tripoli city was the largest percentage and represents 83% the majority of responds which were educated, 16 years and more and their percentage over 70% and the lowest percent was 6 years and it was 2%. Most of cases reported yes they aware know symptoms and the percentage was (52%). The source of knowledge about breast cancer for Libyan women were from TV and internet and their percentage 53%, 31% respectively. **Conclusions**. Factors associated with good awareness included being 40 years or older, more than 16 years educated were a high awareness for BC. Future educational interventions aiming to raise BC awareness should be tailored to the needs of women and Primary prevention and early detection awareness should be the first step for prevention of breast cancer in Tripoli, Libya.

Keywords. Breast Cancer, Knowledge, Awareness- Screening, Women- Libya.

Transfusion Transmissible Infections among Blood Donors in Central Blood Bank in Tripoli, Libya

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ABSTRACT

Background and aims. Blood transfusion save millions of lives worldwide every year, blood safety remains a matter of main concern in transfusion medicine throughout the world especially in developing countries. Transfusion-transmissible infectious (TTI) agents such as hepatitis B virus (HBV), hepatitis C virus (HCV), human immunodeficiency virus (HIV) and Syphilis are among the greatest threats to blood safety for transfusion recipients. The world health organization has recommended a pre-transfusion blood test for TTI as obligatory. The main of this study to investigate the blood donor's samples for HBV, HCV, HIV and Syphilis infections in Tripoli-Libya, North Africa. **Methods:** A retrospective cross-sectional study was conducted among blood donors who attended Tripoli´s central blood bank from January 2020 to April 2021. Sera samples were screened for hepatitis B surface antigen (HBsAg), antibodies to hepatitis C virus (HCV) and human immunodeficiency virus (HIV) using the Architecht Plus i2000 Immunodiagnostic System. Syphilis was diagnosed using the Architecht Plus i2000 Immunodiagnostic System and the rapid test. **Results:** 14591 people were screened for blood donation. Out of this number 14453 (99.05%) were males 138 (0.94%) were females and among the blood donors, 2.4% were volunteer donors, 0.1% were replacement donors and 12.09% were family donors. The highest percentage (66.8%) were among the age group of 25–44 years. The overall prevalence of HBV, HCV and HIV and Syphilis were 0.22%, 0.33%, 0.23% and 0.19%, respectively. Transfusion transmitted infections were dominant among male blood donors compared to female blood donors. **Conclusion:** The prevalence of the TTI agents studied among prospective blood donors in Tripoli, Libya is relatively low compared with international findings. It is important to continue screening of donated blood, with the consideration of cost-effective infectious agent's reduction technology, to increase the availability of safe blood.

Keywords: HBV, HCV, HIV, Syphilis, Blood donors in Tripoli

Clinical and Bacteriological Survey of Diabetic Foot Infections in Tripoli Hospitals

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ABSTRACT

Background and aims. Diabetes Mellitus (DM) is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body's insulin production is ineffective. Diabetes complications are more common among type 1 and type 2 diabetes patients. Diabetes is the major deaths around the world. Foot infections are frequent complications of diabetes mellitus that is associated with high morbidity. The diabetic foot is considered one of the most significant complications of diabetes, representing a major worldwide medical, social and economic problem that greatly affects patient's quality of life. The risk for a patient with diabetes to develop a foot ulcer is close to 25% leading frequently to disablement and leg amputation. Various aspects of wound microbiology are responsible for the development of foot infection. These include microbial load, diversity of microbes, existence of infective organisms and synergistic association amongst microbial species. The aim of this study to determine the bacteriological profile and susceptibility patterns of isolates from positive culture of deep wound sample before ant biotherapy and thereby decrease the rate of foot amputations and disability due to diabetes. **Methodology**. A prospective study of 75 patients with diabetic foot infections admitted to Al-Khadra Hospital and Ibn al-Nafis Hospital was undertaken during the period between the middle of Jane 2022 and the first of September 2022. For bacterial culture, samples were obtained aseptically from each patient by the use of sterilized swabs. **Results**. Out of 75 patients (44 males and 31 females) with a diabetic foot infection. The most cases of diabetic foot infection were with type 2 diabetes. The greatest number of diabetic foot infection patients were males between the ages of 61-80 years old and between 41-60 years old in both genders (males and females), whereas the lowest number of patients with diabetic foot infections were males between 20-40 years old and females between 61-80 years old. Among 75 diabetic foot infection, 37% of them had an ulcer, 29% had gangrene, 8% had pus collection, 7% had Cellulitis with Ulcer, 4% had Gangrene with wet and Ulcer with Pus Collection and 1% of them had Gangrene with Pus Collection. The most common bacteria isolated from diabetic foot infection patients were, Staphylococcus aureus (25%), flowed by Klebsiella sp (14%), E. coli (11%), Pseudomonas aeruginosa (10%), Klebsiella pneumonia (5%), Enterococcus, Bacteria lactose (4%) and Providencia spp (1%). Rocephin and Augmentin therapy were the most frequently antibiotic used for diabetic foot infections. **Conclusion**: This study demonstrated that the most cases of diabetic foot infection was type 2 diabetes. Staphylococcus aureus is the most common bacteria infected diabetic foot infections. Rocephin and Augmentin therapy are the most antibiotic used.

Keywords. Al-Khadra Hospital and Ibn Al-Nafis Hospital, Bacterial Infection Etiology, Diabetic Foot Infection, Antibiotics.

Outcome of Minigrafting in Stable Vitiligo: An Insight from Libya

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ABSTRACT

Background and aims. Autologus with punch minigrafting has been suggested as an alternative surgical method for treating stable vitiligo in refractory patients to induce regimentation. The current study was conducted to evaluate the long-term results of surgical punch minigrafting in patients with resistant vitiligo vulgaris, segmental and focal vitiligo. **Methods**: Case series prospective exploratory study design was performed in Tripoli central hospital (TCH) and private clinic among patient with confirmed vitiligo vulgaris, segmental and focal vitiligo, during the period from 2009 -2019. Data were presented as descriptive statistics using SPSS version 22. Chi-square test was used to test the significance of data with the level of 0.05 considered as significant level. **Results**: A total of 28 patients presented with vitiligo, of them 26 (92.9%) were females and 2 (7.1%) were males, with age ranging from 11-46 years old. The re-pigmentation of vitiligo was (53.6%) vulgaris, (28.6%) segmental, and (17.9%) focal vitiligo, with stable disease that did not have any new lesions at least 12 months with the disease ranging from one year (7.2%) and up to 30 years. The main instruments used with these cases were; skin punch size between 2mm (28.6%), 2.5mm (32.1%), and 4 to 6mm (10.7 %). The donor sites where selected to match the recipient sites either behind ear 39.3%, thighs 43%, while 3.6% were not previously affected by the disease. **Conclusion**. It has been suggested that mini grafting is a proper treatment option for treating patients with stable vitiligo, by using a small size punch, that is less than 2mm.

Keywords. Minigrafting, Stable Vitiligo, Surgical Punch, Libya.

Knowledge Levels of Basic First-Aid Practices Among Primary School Teachers in Tripoli

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ABSTRACT

Background and aims. Injuries are crucial public health problem and very common, once children reach the age of five years' unintentional injuries are the biggest threat to their survival. First-aid is an initial assistance for providing effective and immediate action that help to reduce serious injuries and improve chance of survival. Because teachers have constant contact with children and the schools might not have any trained healthcare providers, then teachers will provide first aid to students. The aim of this study was to evaluate the levels of knowledge regarding basic first-aid managements of minor injuries among children in primary-school teachers. **Method**: The research was conducted on primary school teachers in Tripoli from November 2020 to January 2021., the data were collected by using online questionnaire form that included 27 questions. **Results**: A total of 260 subjects participated in of the sample group,39.2% of the subjects were male and 60% were female. A total of 75.3% of the teachers (n=149) reported that they confronted with a situation where first-aid practices were required in their professional life, and 42.7% of the group had not taken any first-aid training courses before. The most commonly reported sources of knowledge included the media 55.4%. Teachers of 77.7% (n = 202) knew that the ambulance should be called for transportation of injured child, the teachers answers vary regarding to the presence of the phone number to be called in case of poisoning for information was from 18.8- 55% and 26.2% for yes, no and I don't know respectively. Regarding to the results of this study it was observed that there was a significant difference between the level of first-aid knowledge and scores (p=0.006), and was not correlation between age, professional working time and scores of first-aid knowledge the difference was not statistically significant (P value 0.681, 0.422, P>0.05). The rate of answering the questions correctly ranged between 11.2% and 82.3%. The least known practices included first assessment performed with in an unconscious child, fully obstructed airway, child who has fallen from a high level, child who has ingested cleaning materials (11.9%, 13.8%, 14.6%, 16.2%, respectively). **Conclusions**: As a result of study, overall knowledge on first aid of school teachers isn't satisfactory, and teachers don't give accurate first aid especially in critical cases. To improves the knowledge on first-aid of school teachers, properly conducted training should be included more intensively.

Keywords: First aid, Injuries, Primary schools.

Isolation and Characterization Polyhydroxyalkonates (PHA) Producing Bacteria from Engine Oil-polluted Soils

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ABSTRACT

Background and aims. Polyhydroxyalkanotes are natural polymers that have been produced by many types of bacteria resulting to some excess important nutrient such as nitrogen, phosphor, and oxygen. They have been an alternative to petroleum-based plastic which are non-degradable polymers affected by the environment. The aim of the study was to isolate PHAs producing bacteria, and to characterize their ability to produce friendly polymer. **Method**. In this study, Polyhydroxyalkanote producing bacteria were isolated from engine oil-polluted soils in Tripoli, Libya and they were observed under microscope for identify their morphological. In addition, the biochemical tests were utilized to recognize PHA producing bacteria. The characterization of bacteria was conducted using Nile Blue A stain that used to demonstrate good capability for synthesizing PHA. **Results**. The findings revealed that the isolated bacteria were related to negative and positive bacteria and their capacity to produce PHA by using data molasses as a carbon source was achieved. **Conclusion**. Advancement have been made to produce microbial polymer using expensive carbon sources and recover it with high purity using cheaper and safer processes on the earth.

Keywords. Polyhydroxyalkanotes, Molasses, Degradable, Nile Blue.

Practice of Rational Drug Uses in Libya: A Cross-Sectional Study

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ABSTRACT

Background and aims. The improper use of drugs due to irrational prescriptions is a common problem in Libya. This study aimed to investigate the prescribing pattern and predictors of antibiotic prescription in primary health care facilities in three districts (east, west, and south) in Libya. **Methods**. In this retrospective study, 484 prescriptions were examined. World Health Organization-recommended indicators for rational use were examined (WHO): e.g., the percentage of prescriptions covering antibiotics, prescription of injections, and prescription of drugs by a generic name and from a national essential drug list, as well as the average number of drugs per prescription, were all considered. **Results**. The average number of drugs per prescription was 4.72, with a maximum of 7 drugs in a prescription, and the percentage of prescriptions involving antibiotics and injections was 30.4% and 10.5%, respectively. There were 28.6% drugs prescribed by their generic name and 82.8% were retrieved from the essential drugs list. The most common category of medicines were 18.9% antibiotics, 18.3% antihypertensives, and 15.7% multivitamins and minerals. While the lowest consumed drugs were steroids 2.5%. **Conclusion**. There was some irrational drug prescribing, particularly with regard to injections and antibiotics. It is suggested that physicians participate in continuing education programs on rational prescribing for various medical indications.

Keywords. Antibiotic, Rationality, Prescription, Pattern.

Antimicrobial Resistance in Libya: A Systematic Review

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ABSTRACT

Background and aims. In low- and middle-income countries, Antimicrobial Resistance (AMR) imposes a significant burden on patients and health-care systems. Due to a lack of data, the overall impact of AMR in Libya is not well known or documented. As a result, this study presents the results of a review of available data on AMR in Libya of the last 20 years (from 2002 to 2021) to aid understanding of the current AMR situation in this portion of the continent. **Methods**. Articles related to the topic were researched using databases and search engines such as PubMed, Google scholar, and ResearchGate websites. These articles were selected based on predetermined inclusion and exclusion criteria. The total number of tested isolates for each of the reported bacterial spp. was used to calculate antibiotic resistance to a specific bacterium. **Results**: Studies published in the last 20 years, representing reports of 18,160 AMR tests, showed that Urinary Tract Infection (UTI) was the most reported clinical diagnosis in Libya (61.3%). Out of 43 articles, S. aureus was the most common gram-positive bacteria documented in (31, 61.3%) studies, and was most common in 59.78% of skin infections. Whereas, pseudomonas spps., were the commonest gram-negative bacteria presented in (23, 53.48%) studies, and were commonly isolated in respiratory infection (9.39%). Among gram-negative bacteria, Pseudomonas spp. reported a high resistance percentage for penicillin beta-lactam antibiotic i-e piperacillin (10.4%) and to the first generation cephalosporines antibiotics i-e cefazolin (7.7%). However, they are susceptible to metronidazole, vancomycin, and colistin. Gram-positive bacteria, S. aureus shows high resistance to oxacillin followed by gentamycin and cefoxitin (8.5%, 8.3%, and 8.3%, respectively). Effective antibiotics against S. aureus were azithromycin, clarithromycin, and metronidazole, whose susceptibility was 99.9% each, while 1% of S. aureus were VRSA. **Conclusion**. This study gives comprehensive analysis of the state of AMR in Libya in respect to the most regularly prescribed antibiotics. The findings of the research show the alarmingly persistent occurrences of AMR in Libya, as well as the critical need to establish national action plans to combat AMR and improve surveillance programs.

Keywords. AMR, Bacteria, Antibiotic, Libya.

Prevalence of Gout in End Stage Renal Disease Patients

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ABSTRACT

Background and aims. Gout is a disorder of purine metabolism that results in hyperuricemia, but on the other hand, in End Stage Renal Disease (ESRD) patients, the main cause is decreased glomerular filtration rate (GFR), as a result of high uric acid in the blood. Chronic kidney disease has been shown to be an independent risk factor for gout. The main objective of this study was to determine the prevalence of gout among ESRD patients, and to study the possibility of using uric acid as an indicator of impaired kidney function. Moreover, the objective was also chronic kidney disease is one of the risk factors for gout. **Methods.** The study was conducted on 121 patients with renal failure attended Tripoli Kidney Services Center from the period of April to July 2022. Serum urea and creatinine was performed to assess the deterioration of the kidneys, and the uric acid analyses was determined to assess the gout status. **Results**. The overall prevalence of gout among patients with ESRD in this study was 46.3% ($p < 0.000$), with slightly higher rate in females than males. In ESRD patients, all urea and creatinine results were high. The mean urea level in male was 146.9, while it was 146.9 in females. Meanwhile, the mean of creatinine level for females was 8.63, which was higher than in males (8.48). There was no relationship in the uric acid clearance during dialysis with urea and creatinine clearance. **Conclusion**. The current outcomes reported high levels of urea, creatinine and uric acid, suggesting a link between gout and chronic kidney diseases.

Keywords. ESRD, GFR, Chronic Kidney Disease, Gout.

Association between Vitiligo and ABO/Rh Blood Groups and its Influence on the Serum Levels of Vitamin D and TSH

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ABSTRACT

Background and aim. Vitiligo is an autoimmune skin disease, characterized by the loss of skin colour (pigment dilution) due to the destruction of, or damage to melanocytes (pigment cells). Vitiligo is not an infectious disease and can affect all ages of both genders. It is a common pigmentation disorder affecting approximately 1-2% of the world population. Despite the numerous investigations that have been published on vitiligo, the real causes of the disease itself remain obscure. The aim of this study was to determine if there is a relationship between vitiligo and ABO group, the Rhesus (Rh) factor, thyroid stimulating hormone (TSH) and vitamin D (vit. D). **Methods.** Two hundred subjects participated in this study, 100 vitiligo patients and 100 control cases (without vitiligo). ABO blood grouping and Rh typing were tested by slide method. TSH testing involved 80 vitiligo patients and 80 controls and the hormone was analyzed by separating the serum in the centrifuge for two minutes and the results were obtained by Beckman fully automatic analyzer. For vit. D, 50 vitiligo patients and 50 healthy people were included. The data on vit D was obtained from private laboratory services. Statistical analysis was performed using IBM SPSS version 22. $P<0.05$ was considered significant. **Results.** Blood groups A, B, AB, O in vitiligo cases were found to be 32%, 10%, 11% and 47%, while they were 41%,16%, 8% and 35% in the controls, respectively. The incidence of Rh positive and Rh negative was found to be 96%, 4% in vitiligo patients compared to 90%, 10% in the controls, respectively. On the other hand, the serum levels of TSH in vitiligo cases were found to be 12.5% high, 6.25% low and 81.25% normal while in the control cases were 15% high, 8.75% low and 76.25% normal, whereas the serum level of vit. D in vitiligo subjects were 0% high, 84% low and 16% normal while in the controls were 0% high, 72% low and 28% normal. **Conclusion.** This study shows that subjects with blood group O are more susceptible to vitiligo as compared to those with other groups but there is no significant association of vitiligo with Rh ($P>0.05$). Furthermore, no significant differences between patients with vitiligo and healthy subjects in TSH levels ($p=0.955$). However, patients with vitiligo, compared to healthy subjects, had statistically significantly lower serum vit D levels ($P<0.05$), suggesting that lower levels of vit D could trigger or affect the depigmentation process of vitiligo. In the future, a collection of much larger samples in line with a powerful statistical analysis may be necessary to achieve a better precise conclusion.

Keywords. Vitiligo, Blood groups, Vitamin D, Anemia.

Urea and Creatinine Levels in Patients with Chronic Kidney Disease Concomitant with Diabetes and Hypertension

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ABSTRACT

Background and aims. Chronic kidney disease is a slow gradual decline in the ability of the kidney to filter waste. The most important reasons are diabetes and hypertension. This study was conducted to assess the relationship between levels of urea and creatinine with diabetes and hypertension in CKD patients. **Methods**. The study was conducted on 150 patients with chronic kidney disease concomitant with other chronic disease such as diabetes or hypertension, attending different dialysis centers (Alzawia dialysis centre, Tajoraa heart hospital, Tripoli university hospital) during the year of 2020. Patients were grouped into 4 groups; 50 CKD patient with no concomitant disease, 50 CKD patient with both diabetes and hypertension, 25 CKD patients with diabetes, 25 CKD patients with hypertension. Blood samples were obtained from all groups and levels of serum urea and creatinine were measured. Data were presented in mean and percentages using MS excel. **Results**. There were no differences in urea and creatinine levels between the groups (chronic kidney disease with other chronic disease and without other chronic disease). **Conclusion**. Both diabetes and hypertension did not cause any differences in urea or creatinine level.

Keywords. Chronic kidney disease, Diabetes, Hypertension, Urea, Creatinine.

Blood Group Distributions and Its Relationship with Bleeding Time and Clotting Time in Healthy People

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ABSTRACT

Background and aims: Blood group plays a unique role in the field of transfusion medicine. The relationship between bleeding time, clotting time, and blood group is important in certain clinical situation such as epistaxis, surgery, and thrombosis. This study was aimed to find the relationship between bleeding time and clotting time among various blood groups and to identify gender difference between them. **Methods:** The current study includes 110 donors in the age group of 18-63 years, the blood group determined with standard antisera. Bleeding time and clotting time were estimated by Duke's method and slide method respectively. **Results:** The blood group O (49.09%) was more predominant among donors in both genders followed by blood group A (35.45%), B (11.82%) and AB (3.63%). Bleeding time was found to be prolonged >2 min in the blood group O (5.56%), group A (2.56%), group B and group AB (0%) and difference was statistically significant ($p<0.001$). Clotting time was prolonged >6 min blood group A (20.51%) followed by group O (14.81%), group B (7.69%) and AB (0%), significantly ($p<0.000$). Gender-wise distribution of bleeding time was more prolonged in female (6.89) as compare to males (2.47). Similarly, clotting time was prolonged more in female (27,59) than male (11.11) and the difference was statistically significant ($p<0.000$). **Conclusion:** In our study, blood group O is the most prevalent in the ABO blood group followed by A, B and AB least common group. Gender-wise distribution of bleeding time was more prolonged in female as compare to males, and this disparity is an additional risk factor for them. Enhance the appropriate health policies needed for the management and prevention of blood group diseases, as well as bleeding and clotting time-related conditions such thrombocytopenia.

Keywords. ABO blood group, Bleeding Time, Clotting Time, Von Willebrand Factor.

The Effectiveness of Commonly Used Disinfectants and Sterilizers in Libyan Hospitals Against the Most Common Nosocomial Bacteria

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ABSTRACT

Background and aims. Disinfectants and sterilizers are widely used on various types of surfaces for sterilization, and because of their excessive use in line with increasing rates of hospital-acquired infections, numerous studies have recently shown that hospital-acquired bacteria are developing resistance against such compounds. Novel antimicrobial agents are desperately needed because those currently available have become ineffective due to the emergence of disinfectant resistance in hospitals. The aim of this study is to examine the effectiveness of the commonly used hospital disinfectants and sterilizers at Libyan health facilities against nosocomial bacteria. **Methods**. A group of bacteria isolated from different departments in Tripoli University Hospital were used; namely (klebsiella, Proteus, Escherichia coli (E. coli), Acinetobacter, Staphylococcus aureus (S. aureus)). The study used disinfectants impregnated with filter paper discs (disk diffusion assay). The disinfectants used were; Hydrogen peroxide (H2O2), Orolin multisept plus, Chlorhexidine (CHX), 84 Disinfectant, Actosal Flache AF, Ethyl Alcohol. **Results.** The results showed a marked discrepancy in the effect of these sterilizers; The most effective disinfectant was H2O2 against the bacteria tested with inhibition zones of 10 to 26mm, except for Proteus bacteria which show resistance at high concentrations. Similarly, Orolin disinfectant shows excellent efficacy against tested bacteria and even with low concentrations still showed excellent inhibitory effects among tested pathogenic bacteria. Actosal Flache sterilizer showed good efficacy on all species, while Ethyl Alcohol and Chlorhexidine (CHX) showed slight fairly efficacy on all species. In contrast, no effect of the 84 disinfectant was shown on E. coli, Proteus and Acinetobacter, and a very small effect on S. aureus. **Conclusion**. We conclude that both H2O2 and Orolin disinfectants were the strongest antiseptics against tested pathogenic bacteria followed by Actosal Flache, whereas disinfectant 84 was the weakest one. It is necessary to apply continuous monitoring to determine the antimicrobial efficacy of disinfectants regularly. This study suggests the need for increasing the efficiency of sterilization in hospitals by choosing sterilizers and disinfectants of high quality and under the supervision of specialized and replacing disinfectants and sterilizers from time to time to avoid bacterial resistance.

Keywords. Hospital Disinfectants, Nosocomial Pathogens, Disinfectant Resistance, Efficacy of Disinfectant

Lipid Profile of Libyan Patients with Type II Diabetes

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ABSTRACT

Background and aims. Type II diabetes (T2DM) is associated with significant long-term complications, particularly vascular diseases. Dyslipidemia is one of the common disorders which is seen in most diabetic patients and causes cardiovascular disorders. In order to determine the relationship between the lipid profile levels and its complications in T2DM, the aim of this study is to evaluate the level of lipid profile among diabetic patients and compare it to controls. **Methods**. The blood samples were collected from different laboratory facilities inside the Tripoli district including; Isteshari laboratory, Tajura laboratory, and Share'e elgharby laboratory. The total of 140 blood samples was divided into two groups. the first group is diabetic (n=70), other group is non-diabetic (the control) (n=70). The serum samples were assessed for glycosylated haemoglobin (HbA1c), fasting blood sugar (FBS), total cholesterol (TC), triglycerides (TG), low density lipoprotein cholesterol (LDL) and high density lipoprotein cholesterol (HDL) by using standard biochemical methods. Statistical analysis was conducted using both Microsoft Excel 2018 and IBM SPSS version 23. The variances were expressed as mean ± standard deviation (SD). P-value < 0.05 was considered statistically significant. **Results.** Among diabetic patients, the levels of FBS, HbA1c, LDL, TC and TG were significantly higher ($p<0.05$) in type II diabetic patients compared to controls. In contrast, we did not find a significant difference in HDL-C levels between our groups. Furthermore, we also observed that the levels of HbA1c were significantly ($p<0.05$) correlated to lipid profile levels while HDL had shown a statistically non-significant correlation ($p>0.05$). **Conclusion**. The frequencies of FBS, HbA1c, LDL, TC and TG levels were higher in the diabetic group, thus indicating that diabetic patients were more prone to dyslipidaemia, which could cause cardiovascular disorders. This study suggests that patients with T2DM should undergo periodical glycaemic and lipid profile examination control to prevent further cardiovascular disease complications.

Keywords: Type II Diabetes Mellitus, Dyslipidaemia, Lipid Profile, Glycosylated Haemoglobin. Total Cholesterol

The Relationship between ABO Blood Group and Cardiovascular Disease with Cholesterol as Risk Factor for CVD

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ABSTRACT

Background and aims. ABO blood groups have been associated with various disease phenotypes, particularly cardiovascular disease (CVD). Several studies show the association between blood types and heart disease with Lipid profile as one of the risks that cause CVD and have suggested an important involvement of the ABO blood group system in the susceptibility to CVD. The aim of this study was to identify the link between ABO blood group and CVD patients and non-CVD people with cholesterol level from the province of the city in Tripoli, and to analyze whether non-o blood group individuals were at higher risk of CVD or not. **Method**. The study protocol approved by Tajoura heart hospital, and was conducted on 172 patients with CVD and their ABO blood groups were analyzed by using tube method. **Results**. Of the 172 patients had CVD, 79 (45.93%) were carrying blood group A. Of the remaining 93 patients, 50 (29.06%) had group O, 34 (19.76%) blood group B, and 9 (5.32%) blood group AB. The analysis result of CVD patient was higher in patients with blood group A than in other groups, and the analysis result of total cholesterol level of non-CVD people was higher in blood group A (P value =0.001). In patient with blood group AB, there was no statically significant different in total cholesterol incidence (P value = 0.145). **Conclusion**. Our study indicates that there was significant association between the ABO blood types and CVD patients and cholesterol level in non-CVD people in Libyan population, suggesting more rigorous studies with larger population are needed and more risk factors to give high level of evidence to confirm these associations.

Keywords. ABO Blood Group, Cardiovascular Disease, Non-Cardiovascular People, Risk Factor, Total Cholesterol.

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Effects of Semen Disturbance on Male Hormones

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ABSTRACT

Background and aims. Male infertility is a global problem facing the world for several reasons that may be reversible or irreversible conditions, and it may be affected by other factors such as age, obesity, lifestyle, health status, or environmental factors. Male infertility can be diagnosed by semen analysis and examining its parameters such as volume, count, morphology, and motility. Semen quality and male reproductive function are coordinated by actions of accurate hormonal crosstalk, any disturbance in the hormonal cycle that affects the quality of semen. The current study focused on the effect of male reproductive hormone [LH, FSH, Testosterone, Prolactin, Estradiol] on semen quality. **Methods.** The level of serum hormones of 184 cases were measured with the cobas e411 device, and semen parameters were detected according to the procedures recommended by the WHO. **Results.** The results of the study showed a strong effect of hormones (LH, FSH, Estradiol; $p<0.05$) on all semen components, and the effect of testosterone and FSH on the different components of semen. **Conclusion.** Hormonal disorders that occur in some men effect on the semen parameters, leading to infertility.

Keywords. Male Hormones Profile, Semen Parameters, Male Infertility.

Isolation and Identification of Bacteria Causing Conjunctivitis in Tripoli Hospital

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ABSTRACT

Aims. The aim of this study was to isolate and identify the specific bacterial pathogens causing conjunctivitis in patients attending Tripoli Eye Hospital. **Method**. This study included 110 patients with bacterial purulent conjunctivitis who were referred to the outpatient clinic of Tripoli Eye Hospital during the period from 15th May to 30th June 2022. Their ages ranged from 1year to 99 years. All samples were taken through sterile swab from patient conjunctiva and further subjected to laboratory investigation and inoculated on culture media (blood agar, macConky agar, manittol salt agar and chocolate agar), with subsequent identification by biochemical tests (coagulase, catalase and oxidase), Gram stain and antimicrobial susceptibility testing. **Results**. Our finding showed that Staphylococcus aureus (32.7%) was the most common causative agent followed by Staphylococcus epidemidis (30.9%), Pseudomonas aeruginosa (14.5%), and the lowest percentage was for Streptococcal pneumonia and Enterobacter species (1.8%). The frequency of bacterial conjunctivitis in the elderly aged between 60-79 years was higher than the other age groups. The Levofloxacin (41%), Tetracycline (39%) and Chloramphenicol (39%) were highly effective against all bacterial isolates. **Conclusion**. Conjunctivitis affects all age groups especially the elderly people who are more susceptible. The most bacteria causing conjunctivitis are Staphylococcus aureus followed by Staphylococcus epidermidis. The Levofloxacin and Chloramphenicol were found highly effective against most of the isolated bacteria.

Keywords. Conjunctivitis, Pink eye, Eye infection, Staphylococcus aureus, Antibiotic susceptibility test

Antibacterial Activity of Libyan Honey against Some of Common Species of Pathogenic Bacteria

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ABSTRACT

Background and aims. Honey is a natural complex produced by honey bees and from different types of nectar from various flowers and grains the vaccine. Honey has been used as a medicine since ancient times, mainly for the treatment of skin wounds, other inflammation. This study was aimed to the evaluation of the effect of different types of Libyan honey on isolated bacteria at different concentrations. **Method**. This experiment was conducted in the clinical microbiology laboratories at Al-Jalaa children's Hospital (Tripoli– Libya) from April to July 2022. The honey sample used in this study was collected from different regions of Libya, and the honey was diluted in four different concentrations (25%, 50%,75%, and 100%) to evaluate the antibacterial activity of Libyan honey against several pathogenic bacteria (Escherichia coli, Klebsiella pneunomonia, Pseudomonas aeruginoa, Staphylococcus aureus, Staphylococcus epidermidis) using agar well diffusion and agar disk diffusion. **Results**. The results obtained showed that Libyan honey possesses anti-bacterial activity in our study. This effect varies according to the sample, bacteria spp., and concentration. The results of the honey across bacterial species based on four types of honey and their effect on 5 types of bacteria spp. The tests were doubled to confirm the results on four dilutions (25% - 50% - 75% and 100%). The great value of the antibacterial effect can be obtained when honey is at a concentration 100%. Seder honey showed more significance in (P. aeruginoza), while moderate significance was on S. aureus and non-significant was on the bacterial spp. The mean ± SD in spring honey (13.95 ± 11.83) with statistical significance (p= 0.002). Our study also showed that thyme honey was more significant on (E. coli) and moderate significant (S.aureus) bacteria and had non-significant on (Klebsiella, P. aeruginoza, S. epidermidis) bacteria. **Conclusion**. The excellent antibacterial activity of honey against clinical bacterial isolates indicates the usefulness of honey in clinical practice against bacterial infection.

Keywords. Honey; Antibacterial; Gram-Positive Bacteria; Gram-Negative Bacteria; Pathogenic Bacteria.

Antibiotics Resistance Pattern of Staphylococcus Aureus and Staphylococcus Epidermidis Associated with Acne

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ABSTRACT

Background and aims. Pimples (acne) are small skin lesion or inflammations of the skin. The most common factor causing acne is the hormonal changes that occur during adolescent and teenage years. The development of antibiotics resistance by species of bacteria associated with this disease condition has been attributed to the indiscriminate and overuse of certain antibiotics in its treatment. This study aimed to determine the bacteria that may cause acne and determine their susceptibility to antibiotics. **Methods**. A total of 73 samples were collected from male and female patients. Samples obtained were cultured on blood agar and mannitol salt agar, and then incubated at 37°C for 24 h. Pure isolates obtained were subjected to gram staining and other biochemical tests for identification. The isolates were further subjected to antibiotics sensitivity test using disk diffusion method. **Results**. S. epidermides strains 56 (76.7%) and 7(9.5%) S. aureus stains were identified based on morphology and biochemical tests. S. epidermidis was susceptible to doxycycline 38(67.86%), ofloxacin 15 (26.79%), while 47(82.93%), 40 (71.4 %), and 22(39.29%) of S. epidermidis isolates were resistant to tetracycline, erythromycin, and clindamycin respectively. s. aureus was found to be sensitive to clindamycin 7(100%) and doxycycline 7(100%), but it was resistant to ofloxacin 3 (42.86%), erythromycin 2 (28.57%), tetracycline 2(28.57%). **Conclusion**. This study revealed that the staphylococcus aureus and staphylococcus epidermidis were associated with Acne vulgaris. From the antimicrobial susceptibility test S. aureus showed high sensitivity to clindamycin and doxycycline, Meanwhile S. epidermidis showed high sensitivity to doxycycline.

Keywords. Honey; Antibacterial; Gram-Positive Bacteria; Gram-Negative Bacteria; Pathogenic Bacteria.

Ferritin Levels Predict Coronavirus Disease (Covid-19) Severity and Mortality in Tripoli, Libya

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ABSTRACT

Background and aims. Coronavirus disease 2019 (Covid-19) has rapidly developed into a pandemic in months. Elderly and people with underlying medical conditions were at high risk of serious complications and even death. The primary initiating of Covid-19, associated with gravity and mortality, was cytokine inflammatory storm. Increased levels of ferritin were as a result of cytokine storm and secondary hematogocytic lymphohistiocytosis have been observed in patients with severe COVID-19. Cytokine storm is an uncontrolled and dysfunctional immune response within the pathogenic immune mechanism of Covid-19, which can lead to acute respiratory distress syndrome (ARDS) and systemic organ failure. Ferritin is an iron storage protein with the main function of regulating the metabolism of cellular oxygen. Elevated levels of ferritin in the serum correlated significantly with the severity of the disease in patients infected with Covid-19. Due to conflicting results demonstrated by different studies of the possible association of ferritin with gravity and mortality. Therefore, the aim of this study was to determine the role of ferritin in Covid-19 and to investigate the relationship between iron metabolism and Covid-19 transmission. **Method**. This study based in three Libyan hospitals (Tripoli university Hospital, Tripoli Eye Hospital, Tripoli Central Hospital) and two private laboratories (Alaistisharii laboratory, AL-mukhtar laboratory. 500 cases (Positive Covid-19 (291) and Negative Covid-19 (209) were targeted in a period of time from 2018 to 2022 to determine the role of ferritin in Covid-19. Polymerase Chain Reaction (PCR) test was used to confirm the results of positive Covid-19 cases. Serum samples collected and Full Automatic Device Snipe Diagnostic Version Maglumi 600 was used to measure the ferritin levels using chemiluminescence immunoassay technique. Age, gender, and health history were among the data that collected from patient files. **Result**s. About 209 negative Covid-19 cases were selected before and after the coronavirus pandemic and all cases recorded low or normal level of ferritin. Out of 291 positive Covid-19 cases, 250 cases were admitted to the ICU and 41 received care at home. Almost all Covid-19 positive cases were recorded high level of ferritin and 82 cases died in the ICU. The high level of ferritin observed in both gender and all ages of positive covid-19 cases. One of the greatest ferritin levels was 4532 ng/ml. **Conclusion**. This study concluded by confirming that the level of ferritin increases in Covid-19 infection cases and returns to normal after recovery. Therefore, ferritin is a dependent factor for predicting in-hospital mortality in patients with Covid-19 in the ICU, and increased ferritin levels have been association with gravity and mortality.

Keyword. Covid-19, Ferritin Levels, Gravity and Mortality.

Knowledge, Preference and Usage of Selected Topical Medication in Clinical Practice among Physiotherapists in Tripoli Hospitals

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ABSTRACT

Background and aims. Application of topical medications is a complementary component in the practice of clinical physical therapy. It's mostly used by the iontophoresis and phonophoresis technique, or even during massages to treat a variety of diseases ranging from muscle pain to arthritis. However, it is not clear to what extent the physiotherapists in Tripoli hospitals are sufficiently familiar with the effect of these medicines, and what they preferred to use during the treatment sessions. Therefore, the aim of this study was to determine the knowledge, preference and usage of selected topical medications in clinical practice among physiotherapists in Tripoli hospitals. **Methods**. A total of 120 physiotherapists participated in the cross-section survey study. A self-administered questionnaire was given to participates in selected hospitals around Tripoli. Descriptive statistics of a mean and percentages were used to analyze the data. **Results**. The results showed that (56.20%) of participants are using superficial medication with treatment protocol. The participants revealed that the superficial medications are mostly used by phonophoresis technique (46.28%) and massage (41.32%). The results of this study also revealed that the most preferred medication was ketoprofen gel (44.6%), however only 27.3% of respondents were correct about the functions of ketoprofen. The respondents also explained that their choice of superficial medications was based on doctor prescription and practical experience by (51.2%) (40.5%) respectively. **Conclusion**. The study concluded that more than half of physiotherapists in Tripoli hospitals were commonly using topical medications in clinical practice. However, there was general poor knowledge on functions of topical medications amongst participants. Therefore, the researchers suggest the need to organize developing professional programmers/seminars on pharmacotherapy as applicable to physiotherapy practice to improve the knowledge base of physiotherapists.

Keywords. Topical Medications, Physiotherapy, Preference, Knowledge, Therapeutic Functions.

Effects of Diabetes Type 2 on Kidneys Function

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ABSTRACT

Background and aims. Type 2 diabetes contributes to the development or progression of many chronic and age- related pathological processes. One of the major risk factors for morbidity and mortality among patients with diabetes is renal and vascular disease and heart disease. Type 2 diabetes was associated with a significantly increased age of kidney disease with higher urea and creatinine levels. This study aims to measure the effect of type 2 diabetes on kidney function in Libyan subjects. **Methods**. 76 Libyans participated in the study, and categorized into three groups. One group consists of diabetes cases (n = 40), while the other group serves as a control (n = 12), and the other group has no type 2 diabetes but urea and creatinine were elevated (n = 36). After oral informed consent from the study participants, 5 ml of venous blood was drawn under sterile conditions for whole blood analysis. Fasting blood sugar was analyzed. Urea and creatinine data were compared between diabetic and non-diabetic patients using Microsoft Excel 2010. However, statistical analysis was performed using IBM SPSS version 26 where correlation between parameters was analyzed using independent samples t-test. $P < 0.05$ was considered significant. **Results**. In this study, patients with type 2 diabetes had significant increase in the levels of urea and creatinine compared to the control group ($P < 0.05$). **Conclusion**. The current results showed that type 2 diabetes caused increase the damage of kidney function.

Keywords. Type 2 Diabetes, Kidney Dieses, Urea and Creatinine.

Serum Uric Acid in Type 2 Diabetic Patients

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ABSTRACT

Background and aims. Type 2 diabetes (DM) is a heterogeneous disease characterized by varying degrees of insulin resistance and impaired insulin secretion. Insulin is a hormone that regulates the use of glucose in the body. The aim of this study was to investigate serum uric acid levels in patients with type 2 diabetes. **Methods**. This was a case control study. Patients were divided into two groups; Group A included 23 healthy individuals with no family history of diabetes mellitus, the second group included 53 newly diagnosed patients with type 2 diabetes. The age range of the study was from 17-86 years, 32.89% were males while 67.11% were females. Fasting blood samples were drawn and tested for glucose and uric acid levels in the blood. The values were compared with those of normal healthy people. **Results**. Uric acid values were increased in type 2 diabetic patients compared to control group. The increased values were statistically significant with a p-value less than 0.05 (p= 0.04). **Conclusion**. The measurement of uric acid level might provide significant prognostic benefits in terms of type 2 diabetic patients' risk and management.

Keywords. Uric acid, Type 2 Diabetic, Family History, Libya.

Study of Bacteria Associated with Mobile Phone of Healthcare and Non- Healthcare Workers

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ABSTRACT

Background and aims. Despite improvements in modern diagnosis and therapies, hospital acquired infections remain a leading problem of global health systems. Healthcare worker mobile phones is a reservoir for potential pathogens, as being often touched during or after examination of patients and handling of specimens without proper hand washing. The main objective of the present study was to isolate, identify different types of bacteria and from mobile phones of healthcare workers and non-healthcare workers. **Methods**. A cross-sectional study was conducted on 170 mobile phones, all samples were taken by swab from the cell phones of healthcare workers and non-healthcare workers, and then the sample was inoculated into blood agar and Mac-conkey agar dishes. The plates were incubated for 24 h at 37 °C, and after 24 h of incubation, the culture plates were checked for growth, gram staining and biochemistry according to a standard microbiology procedure. **Results**. Among the 85 samples for healthcare workers and 85 for non-healthcare workers, the overall prevalence of mobile phone contamination in healthcare workers was 87% and in non-healthcare workers at 59%. The predominant isolates were gram-positive bacteria, including Staphylococcus aureus (55%), (17%) Staphylococcus epidermidis, (4%) of Staphylococcus saprophyticus, (20%) of Streptococcus, (4%) of bacillus. On the other hand, isolates of Gram-negative bacteria recorded were Klebsiella, with a percentage of (34%), (26%) Pseudomonas aeruginosa, (16%) Proteus, (13%) E. coli, and (11%) of Enterobacter species. **Conclusion.** Our study reveals that there is a specific colonization of bacteria on the mobile phones of healthcare workers and non-healthcare workers. Safety practices and hand washing regulations should be implemented around the use of mobile phones in the workplace. Also routine cleaning of the posterior surface of a smartphone is recommended.

Keywords. Smartphone, Contamination, Bacterial Isolates, Healthcare Workers.

The Influence of Nitric Acid and Electrolytic Decalcifier on the Bone and Bone Marrow Tissues

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ABSTRACT

Background and aims. Bone is a connective tissue reinforced with calcium and specialised bone cells (osteocytes). Decalcification is commonly employed in most histopathology laboratories for bones and bone marrow's microscopic examination. Decalcification is to remove calcium or calcium compounds from the bone and bone marrow for the microscopic diagnosis. The current study was aimed to assess errors that can occur when decalcification solutions are used excessively or for an insufficient amount of time, and whether these errors affect when diagnosing samples under microscope. The study also aimed to assess the influence of decalcifiers (nitric acid and Electrolytic decalcifier) on the bone and bone marrow tissue. **Methods**. Two different decalcification solutions (10% aqueous nitric acid solution, electric decalcifier (formic acid and hydrochloric acid)) used to remove the mineral substances (calcium) from bone and bone marrow biopsy. Biopsies fixed in NBF 10% then decalcified in 5-10% Nitric Acid or in ready to use (Electrolytic Decalcifier) for a period of time. Dehydrant agent, clearing agent and infiltration and embedding materials were used to increase the hardness of the tissue. Rotary Microtome was used to cut a slice of tissue (3-5µm) and Hematoxylin and Eosin (H&E) stain used as a dye for the tissue. Under the microscope, bone and bone marrow tissue were examined to identify decalcifiers affected the tissue. **Results**. Decalcification with 10% nitric acid is shorter and faster than decalcification with an electric solution for both samples (bone and bone marrow). Decalcification speed time depends not only on the samples size but also on the amount and the density of calcium in the bone biopsy. Excessive decalcification may damage tissues and incomplete decalcification may cause microtome cutting difficult. **Conclusion**. 10% Nitric acid is better than electrolyte solution in terms of decalcification speed and clarity of cells under a light microscope. Decalcification plays a direct role in the diagnosis.

Keywords. Bone and Bone Marrow, Decalcification, Clarity Cells Under Microscope.

Risk Factors of Postoperative Shivering at Post Anesthesia Care Unit in Tripoli

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ABSTRACT

Background and aims. Shivering is a common complication of anesthesia, it is compensatory mechanism leads to increase oxygen consumption and increase the risk of hypoxemia, which is caused by induce lactic acidosis, and catecholamine release. Therefore, it may increase the postoperative complications especially in high-risk patients. The aim of the study was to determine if shivering is associated more with general or spinal anesthesia, and to determine the causes that contribute to shivering. **Methods**. A cross-sectional study was conducted on different age groups, were taken from government hospitals (the first distribution of questionnaires was from April to June 2022), during this period collected about 130 patients, the average of their ages was between (18-87) years old, they were randomly selected for the study. **Results**. Out of 130 patients, shivering was observed in spinal anesthesia more than in general anesthesia. The percentage of shivering after spinal anesthesia was 73.91% whereas general anesthesia was 34.43%, mostly in the age group between (38-47) years. **Conclusion**. The prevalence of shivering in post anesthesia was high, usually occur at 30 minutes' post operation. Pregnancy and gender are likely the most common of risk factors, whereas most cases of shivering were under spinal anesthesia.

Keywords. Anesthesia, Shivering, Surgical, Postoperative.

Neonatal Jaundice in Infants of Diabetic Mothers

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ABSTRACT

Background and aims. The care for diabetic pregnant women has extensively progressed. Despite this, infants born to diabetic mothers continue to have a high risk of macrosomia, hypoglycemia, hypocalcemia, respiratory distress syndrome, hyperbilirubinemia, and cardiomyopathy. Regardless of the type of maternal diabetes, neonatal jaundice was frequently noted in infants whose mothers had the disease. Infants of diabetic mothers frequently experience hyperbilirubinemia. Because the cell membrane is less flexible, it has been linked to shorter erythrocyte life; therefore, we investigate the connection between maternal diabetes and neonatal jaundice. Additionally, to determine whether maternal diabetes can increase bilirubin levels in infants. **Methods**. This cross-sectional study was conducted from April to June in al-Jalaa and Al-Khadra Hospital Tripoli, Libya. In neonates, who met the inclusion criteria, serum (total & direct) bilirubin levels was measured by Cobas Integra 400 PLUS device and Biosystem BTS-350 for neonates and measurements the glucose levels for the mothers. The collected data were analyzed using SPSS version 26. The tables and graphs were made using Microsoft Excel program Version 2016. **Results**. Collected samples over three months, found that jaundice ratio in both hospitals was 19%, and infants of diabetic mothers (IDMs) that suffer from jaundice were 27%. The mean of total bilirubin in non-IDMs and IDMs was 7.69 mg/dl and 7.70 mg\dl respectively (p-value= 0.063). The mean of direct bilirubin in non-IDMs and IDMs was 0.25 mg\dl and 0.21 mg\dl respectively (p-value=0.615). The mean of indirect bilirubin in non-IDMs and IDMs was 7.44mg\dl and 7.53mg\dl respectively (p-value=0.059). **Conclusion**. According to the findings of the current study, there is no correlation between neonatal jaundice in infants and mothers who have diabetes. In order to get accurate results, the study should be done on a larger scale with more samples.

Keywords. Neonatal Jaundice, Diabetes, Infant of Diabetic Mothers, Hyperbilirubinemia.

Association Between Red Blood Cells Distribution Width (RDW) among diabetic and non-diabetic participant in Tripoli, Libya.

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ABSTRACT

Background and aims. Several types of literature have discussed the relationship between RDW and diabetes human blood RBCs exhibit physiological size variation, usually expressed in terms of RBC distribution width (RDW), red blood cell distribution width (RDW) measured in laboratory hematology for the differential diagnosis of Cardiovascular disease. The current study was aimed to measure red blood cell distribution width values in the Non-diabetic and diabetes mellitus in Libyan patients in Tripoli, Libya. **Methods**. A comparative study was conducted from April to May 2022. About 80 samples were collected between diabetic (DM) and non-diabetic (NDM). The sample size was calculated based on the expected ratio of 3.8%. The Data obtained was subjected to statistical analysis for general characteristics of the participants such as age and gender. The samples had been referred to the department of Hematology and Biochemistry at reference Medical Laboratory, Tripoli, Libya. The Blood specimen obtained from patients the plasma was separated after centrifugation at 3000 rpm for 5 minutes by centrifuge to analyze fasting plasma glucose, and whole blood to analyze CBC and HBA1C. KX-21N using a whole blood mode to automated hematology analyzer Sysmex measure RBC parameters. Our data obtained were subjected to SPSS analysis. **Results**. In this investigation, it was shown that samples had a significant positive association with (HbA1C, and FBS) and this correlation was P = 0.01. In addition, it was discovered that samples that were adversely linked with RDW-CV did not significantly correlate (P > 0.01). The values of HbA1C and FBS were found to be high for NDM with a very large difference when DM and control NDM were compared using statistical analysis. Regarding the mean ± SD of RDW-CV (43.47± 4.05) and (45.17 ±3.63) for both variable samples and RDW SD values (13.34 ±1.17) and (13.48± 1.04), were comparable mean values. However, when looking at the other parameters (WBC, RBC, HGB, HCT, MCV, MCH, and PLT), it was discovered that the values varied in straightforward proportions. **Conclusion.** The importance of studying the values of red blood cells for diabetic patients is one of the predictors of diseases related to the heart and kidneys. It also takes into account the need for diabetic patient to adhere to complete blood analysis.

Keywords. Diabetes Mellitus, Red Cell Distribution, Width.

Post Covid-19 Rehabilitation; Perception and Experience of Libyan Physiotherapists: A cross-Sectional Survey

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ABSTRACT

Background and aims. The role of the physiotherapist in the rehabilitation of COVID-19 survivors is increasingly recognized, with a focus on combating respiratory and physiological imbalances. Barriers to applying the appropriate qualification have been identified here. The aim of this study was to analyze the current perception and experience of Libyan physiotherapists regarding evidence-based rehabilitation after COVID-19. **Methods**. Using a cross-sectional survey among physiotherapists who practiced in public hospitals and private clinics in Libya. 5 public hospitals and 23 private clinics were included. 122 participants were surveyed. **Results**. The sample consisted of (62.3% males, 37.7% females), 74.2% have worked with post-Covid19 cases. Most of the cases handled were after discharge from the Intensive Care Unit (ICU) (43.3%). Additionally, up to 88% of Libyan physiotherapists showed a lack of knowledge regarding post covid-19 chest rehabilitation. Where 36% of them complained about the lack of personal protection equipment PPI. **Conclusions**. This study showed a significant shortage of physiotherapists with a lack of knowledge of how to deal with post-COVID-19 cases, and a lack of interest in providing protocols and means of protection. Also, physical therapy in Libya needs professional development to increase the knowledge of specialists to deal with post covid-19 cases.

Keywords. COVID-19, SARSCoV-2, Post-acute COVID-19 Syndrome, Chest physiotherapy, Rehabilitation.

Knowledge of Aflatoxin Contamination and its toxicity in groundnut among Libyan public

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ABSTRACT

Background and aims. Aflatoxins are highly toxic secondary metabolites produced via a polyketide pathway by Aspergillus fungi, Aflatoxins (AFs) are potent toxic compound bearing various effects like mutagenic, estrogenic, teratogenic, carcinogenic or acute and chronic toxicity. This study aimed to determine the awareness and knowledge of aflatoxins contamination and its risk in Libyan society. **Method**. A descriptive cross-sectional study using online questionnaire was conducted with 524 respondents. **Results**. Participants were 62.8% (n=329) female, (75.2%) are under 30 years old, health sector made up (37%), teaching (14%), agricultures sector (4%) and another sector (45%). All (42%) of respondents had previously heard about aflatoxins (20.4%) from internet and class lectures (18.5%) which were the most common source of the information. **Conclusions**. The finding results showing low knowledge of aflatoxins contamination and its risk in Libyan society. It has been concluded that there is a need to strategies programs to improve the level of knowledge of public about aflatoxins.

Keywords: Aflatoxins, knowledge, awareness, contamination.

Lactate Dehydrogenase (LDH) Levels Predict Coronavirus Disease (COVID-19) Severity and Mortality in ICU, Tripoli, Libya

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ABSTRACT

Background and aims. As in March 2020, more than 100,000 cases of coronavirus disease-2019 (COVID-19) were reported in more than 100 countries with thousands deaths globally. It is now known that Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) is a new type of coronavirus causing COVID-19 infection. The most common clinical symptoms of SARS-CoV-2 infection is fever, cough, tiredness and loss of taste or smell. Lactate dehydrogenase (LDH) is a key enzyme in the glycolytic pathway and a cytoplasmic enzyme found in most organs. This enzyme has been linked to inflammation response and cell damage. Currently, the role of serum LDH level in patients infected by SARS-CoV-2 is unclear. The current study was conducted to determine the role of LDH levels in Covid-19 patients. **Methods**. About 102 patients were targeted in this study in a period of time from July 2020 to February 2022. This work was based in ICU in two isolation centers hospitals, Tripoli Medical Centre Hospital (TMCH) and Tripoli Eye Hospital. **Results**. LDH elevation (> 280 U/L) was detected in majority of patients. LDH value showed positive correlations with age, duration of stay, lung involvement, when LDH value was (<280 U/L). **Conclusion**. Among the patients suffering from COVID-19 more than half of them have increased the level of LDH. Our findings suggest that the severity of COVID-19 is closely associated with LDH levels.

Keywords. LDH, Corona Virus Disease-19, Biomarker, Mortality, Lactate Dehydrogenase.

Prevalence of Vitamin B12 Deficiency among Patients with Type 2 Diabetes Mellitus Under Metformin Therapy

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ABSTRACT

Background and aims. Although the prevalence varies, vitamin B12 insufficiency is more prevalent in people using metformin. This has been linked to a number of factors. The purpose of this study was to assess the prevalence of vitamin B12 deficiency in people with type 2 diabetes who are taking metformin. **Method**. The study consisted of 80 patients in all who met the eligibility requirements. Blood was collected to check the levels of vitamin B12 after a questionnaire was filled out. A serum B12 level of less than 200 pg/mL is considered vitamin B12 insufficiency. **Results**. 5% of patients (n=80) had serum vitamin B12 insufficiency. The metformin dose was significantly correlated with the lack of vitamin B12 and borderline levels. Vitamin B12 levels were reduced in patients taking metformin doses more than 1000 mg. **Conclusion**. B12 deficits were present in 5% of type 2 diabetics taking metformin. Metformin use over an extended period may increase the likelihood of this connection, which is influenced by the prevalence and severity of diabetes.

Keywords. Vitamin B12, Type 2 Diabetes Mellitus, Metformin.

Thyroid Hormones Related to Inflammatory Bowel Disease

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ABSTRACT

Aims. The purpose of this research was to justify that thyroid scans could be considered as a routine examination for an inflammatory bowel disease (IBD) patient. **Methods**. We had examined IBD patients' reports and files from archives to infer any required previous examination of the patient that did not include any examination. A total of 25 patients were diagnosed (9 people diagnosed with ulcerative colitis and 16 people diagnosed with Crohn's disease) ranging in age from 17 to 56 years. The study was conducted from June 2022 to July 2022. **Results**. The results indicated the presence of thyroid disorders in people with Crohn's disease. While there were no thyroid problems in people with ulcerative colitis. There was no significant increase in TSH values as they were in Crohn's disease (P = 0.052), ulcerative inflammatory disease (0.741) as well as FT4 in Crohn's disease (P = 0.200), and ulcerative inflammatory disease (0.862). **Conclusion**. There may not be a significant difference in the prevalence of thyroid disease between IBD patients and the general population. However, further data must be collected to clarify these findings.

Keywords. Thyroid, Ulcerative Colitis, Crohn's Disease, Inflammatory Bowel Disease

Physiotherapy Intervention for Post-Operative Brest Cancer Patients

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ABSTRACT

Background and aims. Post- operative breast cancer patients are commonly referred to physiotherapy to help relieve surgery pain, improve the patient's quality of life and a swift return to their daily activities. However, there is limited research available about how physiotherapists in Tripoli hospitals deals with post- operative breast cancer patients and what physiotherapy programs are recommended. Therefore, this study was aims to investigate the current physiotherapy intervention used to manage post-operative breast cancer patients, amongst physiotherapists within hospitals in Tripoli. **Methods**. This study was based on a questionnaire organized into two parts; the first includes general information about the therapists, while the second is a physiotherapeutic intervention recommended for managing patients. The study conducted on 38 specialists in physiotherapy and rehab patient post mastectomy, at nine private and public hospitals in Tripoli. Descriptive statistics of mean percentages, p-value, T test and Chi-Square were used to analyze the data. **Results**. Most of therapists reveled that they visit less than 20 patients per year in the clinic; most are women suffering from post-operative complications. However mental health of the patients was the most important barriers in the treatment of breast cancer patients. Furthermore, the therapists recommended to use "body posture correction, manual therapy, passive mobilization and manual lymphatic drainage" interventions for the first two weeks post mastectomy. While "Shoulder stretching exercises, strengthening exercises - general, shoulder strengthening exercises and manual lymphatic drainage" are recommended for 2 to 4 weeks' post-operation. Finally, "Shoulder range of motion less than 90 and more than 90, general fitness exercises " exercise interventions are recommended for 1 to 3 months' post-operation. However, 77% of participants agree that electrotherapy will never be used for post mastectomy women. Participants' answers indicated that the educational level or years of experience had no influence on their choices. **Conclusion**. Raising the awareness among patients and other health professionals about importance of physiotherapy and rehabilitation post operation for breast cancer patients.

Keywords. Breast Cancer, Mastectomy, Physiotherapists, Exercise Intervention.

Prevalence of Anemia Among University Students

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ABSTRACT

Background and aims. Anemia is defined as a state in which hemoglobin is below the lower limit for age and sex range of the patient. The prevalence of anemia is incredibly higher among developing nations, because of low socioeconomic status and poor access to the healthcare services. University students need additional nutritional supplements and they could be at high risk of getting nutritional anemia since they exhibit increased physical activity. Aim: This study was carried out to determine the prevalence of anemia and its association with demographic and clinical characteristics in a representative sample of university students from Tripoli University-Libya. **Methods**. A cross-sectional study was conducted among 100 University students, of whom (49%), were males and (51%) were females. A structured questionnaire was used to capture sociodemographic and clinical characteristics. Blood samples were collected, and a complete blood count was measured to assess anemia in all participants. The data was analyzed using (SPSS) software, version 20. Frequencies, proportions, and rates of the given data for each variable was calculated. A chi-squared test of independent was conducted to assess the relationship between anemia and other categorical variables. Pearson's correlation was used to determine the strength and direction of a linear relationship between two continuous variables (Hb and age, Hb and Wight). Statistical significance was defined as a p-value < 0.05. **Results.** The overall prevalence of anemia in the university students was 23%. The prevalence of anemia was higher in female than male (43% vs 2%) and Microcytic anaemia was the most common type of anaemia among students. The association between anemia and gender was statistically significant ($p < 0.05$). A Significant correlation was also observed between anemia and blood transfusion ($p=0.041$), students who had not history in donating blood have anemia more than students who had donated blood. The prevalence of anemia was higher in students who take supplements such vit-C than in other students (50%vs21.7). The students who did not take regular meals are more likely to have anemia than others who take regular meals (30.8% vs 21.8%). Anemia was found to be more prevalent in vegetarian students as compared to non-vegetarian students 25%vs 22.8%. **Conclusion**. A high prevalence of anemia was observed among undergraduate female students. Hence, implementation of educational, awareness, screening and nutritional programs is warranted with special reference to adult age group.

Keywords. Anemia, Students, Tripoli University

Prevalence of Iron Deficiency Anemia among School Students in Tripoli, Libya

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ABSTRACT

Background and aims. Iron deficiency anemia is the commonest nutritional disorder in the world. It is a condition in which anemia occurs due to lack of available iron to support normal red cell production. Iron deficiency is the most prevalent hematologic disorder during childhood, it approximately affects 48% of the children aged between 5 and 14 years in developing countries. The purpose of this study was to estimate the prevalence of iron deficiency anemia among school students aged between (12-18) years in Tripoli, Libya. As well as to evaluate the level of knowledge, awareness and practices of parents of the study population concerning the significant of iron for student's health. **Method**: Across-sectional study was conducted in 7 randomly selected schools in three different regions of Tripoli City-Libya. The number of students from each school in these regions were chosen according to the approval of student's parents or their guardian. A structured questionnaire design was based on the previous studies was distributed between student's parents to measure the level of awareness, knowledge, daily practices and health profile of the participants and their families. A total of 105 students aged between (12-18) years were enrolled in this study. Blood samples were collected and was used for the estimation of hematological parameters (Hb, MCV, MCH), Serum iron and total iron binding capacity. The data was analyzed using (SPSS) software, version 26. Frequencies, proportions, and rates of the given data for each variable was calculated. **Results**: The overall prevalence of anaemia in the study population was 31.4%. The prevalence of iron deficiency anemia was higher in females than males (21.2% vs 5.1%), and also was higher in secondary school than the preparatory schools (22.2% vs 4.8%). In general, poor knowledge regarding iron rich nutrients and its absorption, as well as inappropriate daily healthy practices which leads to iron deficiency anemia were noted. **Conclusion**: Despite IDA occurring in all age groups with various rates, it is more prevalent in secondary school females. Correction of iron deficiency at this age groups enhances their learning potential, increases their work capacity later and safe future motherhood in girls. Therefore, health education programs should be implemented in schools to highlight the risk factors of anemia and to encourage the intake of diverse diets including iron-rich foods.

Keywords: Iron deficiency Anemia, School Students, Tripoli, Libya.

Oxidative Stress and Hormonal Disruption among Libyan Infertile Women

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ABSTRACT

Background and aims. Hormonal imbalance and the associated pathologies have been implicated as a major cause in women infertility, which is a common multifactorial health issue among Libyan women. There is a growing body of literature suggests that oxidative stress affects female fertility due to an imbalance between increased oxidants and decreased antioxidants mechanisms. This imbalance deteriorates hormonal cross-talks between hypothalamus, pituitary gland and ovary resulting in reproductive dysfunction and infertility. This study is aimed to assess the role of oxidative stress on reproductive hormonal imbalance status within the infertile Libyan women in comparison with the age matched normal fertile women. **Methods**: The study group consist of (79) infertile and (21) fertile women at reproductive age (33.02 + 5.44) years. A short questionnaire was used to collect detailed information including reproductive hormones: follicle-stimulating hormone (FSH), luteinizing hormone (LH), estradiol, prolactin and thyroid stimulating hormone (TSH). A blood sample was collected on day 2 of menstrual cycle for estimation of oxidative stress biomarkers: total antioxidant capacity (TAC), malondialdehyde (MDA) as an index of lipid peroxidation. In addition, reactive oxygen species production was assessed by Nitroblue tetrazolium (NBT) method in neutrophils and serum. A nonparametric Mann-Whitney test was used to compare the two groups and the Spearman correlation coefficient to assess the relationships between variables. **Results**. A significant increase in FSH, LH, estradiol and prolactin levels were observed in infertile group compared to control ($P < 0.05$). Higher levels of MDA, NBT-reactivity levels in serum as well as NBT-positive neutrophils were detected among infertile group compared to control ($P < 0.0001$). Furthermore, lower levels of TAC were identified in patients compared to healthy women ($P < 0.0001$). The MDA was positively correlated with LH, NBT-reactivity level and NBT-positive neutrophils ($P < 0.05$). In addition, a significant positive correlation was observed between NBT-reactivity level and LH, NBT-reactivity level and estradiol, NBT-positive neutrophils and LH, NBT-positive neutrophils and estradiol. On the other hand, the TAC was negatively correlated with FSH, LH, estradiol, MDA, serum NBT-reactivity level and NBT-positive neutrophils ($P < 0.05$). **Conclusion**: The results suggest that the elevated levels of FSH, LH, estradiol and prolactin may be one of the infertility causes in women. In addition, increasing lipid peroxidation and depletion of antioxidant capacity may induce oxidative stress and involved in the possible pathology of Libyan women infertility related hormonal imbalance.

Keywords: Oxidative stress, Hormonal imbalance, Women infertility, MDA, Antioxidants

Adverse Effects of Lead Paint Exposure on Liver Function of Painting Workers in Wadi AL-Hayah, Libya

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ABSTRACT

Background and aims. Lead is a toxic and harmful substance that can impact the homeostasis process of hepatic biochemical markers and blood pressure. According to WHO, 2020, Lead paint is still considered the major source of lead toxicity in most countries; about 60% of all countries still allow using lead in paints and only 11% of all African countries have lead paint laws and legislation to regulate lead use in paints, unfortunately Libya is not included. Therefore, the objective of the study was to evaluate blood lead levels among painting workers (lead paint exposed group) and in unexposed subjects (control group). The second objective was to investigate its adverse impact on liver function and blood pressure. **Methods**. A total of 64 adult male participants whose ages ranged between 20-45 years were included in this study, 34 of painting workers (lead paint exposed group) and 30 subjects as a control group (lead paint unexposed group). The mean age of painting workers and control group was 35.76 ± 6.47 years and 35.33 ±6.48 years, respectively. Blood lead and hepatic biomarkers (ALT, AST, Total protein and serum albumin) were all biochemically measured in the study. Systolic and diastolic blood pressure was also measured in the study. All the results were statistically analyzed using SPSS version 20 for applying one-way ANOVA test. **Results**. Blood Lead level of exposed and unexposed group was 6.39±3.32 µg/dL and 1.25±0.58 µg/dL, respectively. Significant increase in the levels of blood lead, ALT, AST and blood pressure among painting workers (lead paint exposed group) as compared to unexposed group, on the other hand, there was a significant decrease in total protein and serum albumin among painting workers as compared to unexposed group. **Conclusion**. It is concluded that lead paint exposure has an adverse effect on liver function and blood pressure which may contribute to cardiovascular diseases by elevating blood pressure even at low lead levels. Moreover, long susceptibility to lead exposure leads to more significant changes in hepatic biomarkers and blood pressure.

Keywords. Adverse Effect, Lead Paint, Liver Function, Hepatic Markers, Blood Pressure.

Awareness and Knowledge regarding Endocrine disorders among Medical College Students in Libya

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ABSTRACT

Background and aims. A condition of the endocrine glands resulting in abnormal hormone levels, or diseases that result from lesions in the endocrine system such as nodules or tumors. The imbalance of levels of hormones or if the body cannot respond to these hormones the person has endocrine disorders. Thyroid disorders are among the most prevalent medical conditions. Any dysfunction of the endocrine has a profound impact on health and well-being. This study was to evaluate the awareness and knowledge of medical college students about endocrine disturbance and the effect of endocrine-disrupting chemicals on the endocrine system. **Methods**: A descriptive cross-sectional study was performed on 250 members of students (83.6 % Female and 16.4 % Male) in Libya from 11 May to 30 June. An online questionnaire was used to collect data on the respondent, socio-demographic characteristics, previous awareness of endocrine disorders and knowledge regarding endocrine disrupting chemicals in the endocrine system. **Results**: In this study, 82% of the participants heard about endocrine system disorders. Only 44.4 % of the respondents have Information about the mechanisms of action of endocrine disordering chemicals. A total of 56% of respondents have said that endocrine disordering chemicals affect the pancreas, 66.8 % thought that have an unwanted effect on pregnant women and 76% of respondents commented that they harm children, as well as 40.8% of 76 %, said that the unwanted effect lies in growth and endocrine disorders. About 34% of the students were hesitant regarding the knowledge about endocrine disorders in pregnant women. Therefore, 65.6% of respondents feel that it's very important to transfer information about endocrine disruptors to pregnant women, inversely 4% said unimportant. The source of pregnant women being susceptible to endocrine disorders was 54.8 % of respondents answered I don`t know, but 3.6 % say cosmetics and pharmaceutical products. On the other hand, 61.2 % want to attend training courses for more information rather and 37.6% want to know more about the risks of endocrine disorders during pregnancy. **Conclusions**: This was the first study to qualitatively explore Medical college students' perceptions of endocrine disorders in a general context. The study has provided valuable visions into student awareness and knowledge about endocrine disorders. More than 80% of students hear about endocrine disorders. In general, participants received information about endocrine disorders from their college lectures. The participants have sufficient information about endocrine disturbing chemicals. Therefore, results showed that the students have a good idea about the risk effect of the endocrine disturbing chemicals on children and pregnant women. Otherwise, students have hesitant knowledge about the products that should be avoided in pregnancy. Most of them agree with the importance of warning pregnant women about the risk of chemicals which disturb the endocrine system, and attend training courses for more information about endocrine disorders.

Keywords: Thyroid glands, awareness, endocrine disorders, pregnant women.

Association of Lipid Peroxidation and Anti-Mullerian Hormone (AMH) Levels in Seminal Plasma within Libyan Infertile Men

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ABSTRACT

Background and aims. Oxidative stress may have an indirect effect on the activity and AMH secretion. AMH is one of the seminal plasma hormones that may have an important role and contributes to male fertility. This study is aimed to investigate the possible hidden factors of male infertility among Libyan population by studying the association between lipid peroxidation and AMH in seminal plasma of Libyan infertile men.

Methods. Semen subjects of this study were collected from 115 men (39 fertile men) and (76 infertile men) attending Alshark laboratory in (Tripoli Libya), aged between 25 and 42 years. semen analysis was conducted according to WHO method for semen analysis. Seminal AMH concentrations were evaluated by direct ELISA. Seminal plasma levels of MDA as lipid peroxidation marker were estimated by TBARS assay. Seminal plasma levels of GSH were detected by Ellman's method. Data were statistically evaluated using SPSS statistics.

Results. The results found negative association between seminal MDA concentration and AMH level, whereas AMH level had positive significant relationship with seminal antioxidants content of GSH concentration. **Conclusion**. The study has provided new insight into the possible indirect association of lipid peroxidation with decreased levels of seminal AMH in Libyan infertile males.

Keywords. Seminal plasma, Oxidative stress, Lipid peroxidation, Malondialdehyde (MDA), AntiMullerian Hormone (AMH).