

FACULTY OF MED TECH

2ND-TCMT

2ND TRIPOLI CONFERENCE ON MEDICAL TECHNOLOGIES

11 NOV, 2023

TRIPOLI CONF. ON MED TECH



Organized by
Faculty of Medical Technology,
Universit of Tripoli



2nd TCMTs 2023 Conference

تحت شعار: نحو تعليم طبي متطور لتحقيق التنمية المستدامة

مؤتمر طرابلس الثاني للتقنيات الطبية

2nd Tripoli Conference on Medical Technologies
(2nd TCMT)

تنظيم كلية التقنية الطبية جامعة طرابلس

نوفمبر 2023

هيئة رئاسة المؤتمر

ا.د. عائشة قشوط, عميد كلية التقنية الطبية, جامعة طرابلس
(المشرف العام للمؤتمر)

د. احمد البدري عطية, كلية التقنية الطبية, جامعة طرابلس
(رئيس المؤتمر)

اللجنة التحضيرية

ا. عبدالله خلف الله, كلية التقنية الطبية, جامعة طرابلس
(رئيس اللجنة التحضيرية)

د. اريج عبدالجواد, كلية التقنية الطبية, جامعة طرابلس
(عضو اللجنة التحضيرية)

ا. عيبربن عاشور, كلية التقنية الطبية, جامعة طرابلس
(عضو اللجنة التحضيرية)

ا. حميدة المقرحي, كلية التقنية الطبية, جامعة طرابلس
(عضو اللجنة التحضيرية)

ا. فاطمة الفرادي, كلية التقنية الطبية, جامعة طرابلس
(عضو اللجنة التحضيرية)

ا. سحر الزاويدي, كلية التقنية الطبية, جامعة طرابلس
(عضو اللجنة التحضيرية)

رئيس اللجنة العلمية بالمؤتمر

ا.د. نجيب المرزوقي, كلية الصيدلة, جامعة طرابلس

أعضاء اللجنة العلمية

ا.د. جمال الخوجة – كلية التقنية الطبية جامعة طرابلس

د. عبدالرزاق وريث – كلية التقنية الطبية جامعة طرابلس

د. خالد الباروني – كلية التقنية الطبية جامعة طرابلس

ا. ايمان عبدالواحد – كلية التقنية الطبية جامعة طرابلس

ا. احلام الخشبي – كلية التقنية الطبية جامعة طرابلس

ا.د. عبدالعزيز الرابطي – كلية الطب جامعة طرابلس

ا.د. ربيعة الغزير – كلية العلوم جامعة طرابلس

ا.د. ابراهيم الدغيس – كلية الطب البيطري جامعة طرابلس

د. محمد المرعوش – كلية طب الاسنان جامعة طرابلس

د. هناء السعيد – كلية التمريض جامعة الموصل

د. وسن نوري – كلية الطب جامعة المستنصرية

Evaluate the Performance of Stool Antigen Tests to Detect Helicobacter Pylori Infection in Tobruk, Libya

Eisa Omar

Department of Microbiology, Faculty of Medicine, University of Tobruk, Tobruk, Libya.

Email address: eisasaleh1987@tu.edu.ly

ABSTRACT

Infection by *Helicobacter pylori* (*H. pylori*) occurs in half of the general population worldwide, with high geographic variability. Even though *H. pylori* is the leading cause of several gastric diseases, ranging from gastritis and peptic ulcers to gastric malignancies such as gastric cancer and mucosa-associated lymphoid tissue lymphoma, most of the infections remain asymptomatic. Early detection and eradication of *H. pylori* can definitely prevent severe long-term gastric diseases associated with the bacteria. In Libya, the prevalence of *H. pylori* is not well documented, especially in healthy subjects. The aim of this study is to evaluate the performance of a stool antigen test for *H. pylori* in people from Tobruk, Libya. The present study was conducted on 130 stool samples, including both children and adults. The present study was carried out at the polyclinic in Tobruk, Libya. A total of 130 symptomatic patients selected randomly (50 males and 80 females; age range of 5 to 80 years) were studied. Out of the 130 participants screened, 70 (53.84%) were positive, while 60 (46.15%) were negative for *H. pylori* stool antigen. To detect *H. pylori* antigen in feces, the TECAN fecal antigen and the ELISA enzyme-linked immunoassay for the quantitative and qualitative determination of *Helicobacter pylori* antigen in feces were used.

Keywords. *Helicobacter Pylori*, Stool Antigen Test, ELISA.

The Protective Effects of the Ascorbic Acid in the Heart Tissues Damage Induced the Acetaminophen in Male Rats.

Eda Alshailabi*, Ola Abdalally

Department of Zoology, Omar Al-Mukhtar University, El Beida, Libya.

Email. eda.muftah@omu.edu.ly

ABSTRACT

Acetaminophen (AMP) is a widely used analgesic and antipyretic agent which was caused acute hepatotoxicity and nephrotoxicity in both human and experimental animals when administrated in unnecessary high doses. Ascorbic acid (AA) plays roles in many biological functions such as participates in the production of collagen by taking a role in proline and lysine hydroxylation. AA acts by scavenging reactive oxygen species via rapid aqueous-phase electron transfer, thereby reducing adhesion of neutrophils to endothelium. It declining the production of oxygen free radicals and subsequent lipid peroxidation. So, the present study investigated the protective effects of the AA on the heart tissues damage induced the acetaminophen in male albino rats. Thirty-two male albino rats were divided randomly into four groups with eight rats in each group. Group (1) normal control group which given distilled water for two weeks, group (2) was received the AA at a dose of 500 mg/kg/d/ b.w. orally by gavage for two weeks, group (3) was received the AMP at a dose of 500 mg/kg/d/ b.w. orally by gavage for two weeks, and group (4) was treated with a combination of the AA (500 mg/kg/d/ b.w.) and the AMP (500 mg/kg/d/ b.w.) orally by gavage for two weeks. The histopathological investigations of the heart tissues from the AMP group showed arrangement of myocardial fibers was disordered as well as cellular oedema and breaks or necrosis were evident. In addition, perivascular mononuclear cell infiltration, fragmentation of sacroplasm and degeneration changes, hyaline degeneration of myocardial fibers, congestion and dilatated of blood vessels with highly thickened wall when compared with a normal control rats. While the heart tissues from a combination group showed the marked improvement in the heart tissues as compared to the AMP group. In conclusion, the present conclusions clearly demonstrate that the ascorbic acid effects on protection in heart tissues by the prevention of free radical's generation and it is an improved, and support wound healing, also it could tremendously enhance the treatment process and result in better outcomes against the tissues damage by the acetaminophen.

Keywords: Heart; Ascorbic acid; Acetaminophen; Histopathology.

The Role of the Mediterranean Diet in the Treatment of Non-Alcoholic Fatty Liver Disease

Mahfouth Ahmed Almansory^{1*}, Ahmed Ali Khalaf², Layla Khalifa Dabaj¹

¹Department of Gastroenterology and Hepatology, Tripoli University Hospital, Tripoli, Libya

²Ministry of Health, Tripoli, Libya

Email: Mahfouz19911991@gmail.com

ABSTRACT

Background and aims: Non-alcoholic fatty liver disease (NAFLD) is the term for a number of disorders brought on by an accumulation of fat in the liver. People who are overweight or obese frequently exhibit it. The majority of the time, early-stage NAFLD is harmless, but if it worsens, it can cause severe liver damage, including cirrhosis. High liver fat levels are linked to an increased risk of significant health issues like diabetes, hypertension, and renal disease. The Mediterranean diet has the largest corpus of evidence on the prevention and treatment of non-communicable illnesses as well as mortality. While a large portion of the Mediterranean diet consists of plant-based foods, it also incorporates a variety of non-dietary lifestyle choices. The aim of this study was to determine the clinical effectiveness of the Mediterranean diet and nutritional counseling on the reduction of NAFLD severity; weight loss, and liver enzymes in Libya. **Methods:** This observational study proposes a 6-month intervention for treating patients with NAFLD in the department of gastroenterology and hepatology at Tripoli University Hospital, Libya, during the period from January to June 2023. The approach is based on clinical and Mediterranean diet-based nutritional interventions that are carried out by a gastroenterologist and a nutritionist, respectively. The effect of the treatment was evaluated by monitoring liver enzymes and weight loss. **Results:** There were 50 cases of NAFLD, of which 33 adults received a 6-month clinical and dietary intervention (based on the Mediterranean diet). Out of 33 patients studied, 15 (45.5%) were males and 18 (54.5%) were females, with a mean age of 42.48 ± 8.19 years (range 31–59). The mean values of weight in NAFLD patients before and after Mediterranean diet treatment were 104.54 ± 24.96 and 76.42 ± 12.83 , respectively. As far as the liver enzymes are concerned, all three liver enzymes significantly decreased during the treatment; the mean values of ALT, AST, and ALP were 25.69 ± 10.16 U/L, 27.57 ± 9.44 U/L, and 71.93 ± 30.55 U/L, respectively. Parameters, i.e., AST, ALT, ALP, and weight, showed a significant improvement between baseline and end-treatment. **Conclusion:** The findings of the present study support the idea that adopting a Mediterranean diet and leading a more active lifestyle may be regarded as a secure treatment strategy for lowering the risk and severity of NAFLD and associated disease states. The suggested strategy may be put out as a legitimate and advised strategy for enhancing NAFLD patients' clinical profiles.

Keywords: Non-alcoholic, fatty, liver, disease, Mediterranean, diet, treatment

Evaluation of Vitamin D Status Among Adult Population in Tripoli Region, Libya

Apoajela Ahmed^{1*}, Manal Amr², Basma Almoner², Moudah Salim², Saja Abudaber²

¹Department of Chemistry, Faculty of Education, Alghoryfa, Sebha University, Libya.

²Department of Medical Laboratories and Pharmaceutical Sciences, Tripoli College of Medical Sciences, Libya

Email. Apo.Ahmed@sebhau.edu.ly

ABSTRACT

Background and aims. Vitamin D deficiency is a pandemic public health concern as it is highly prevalent in all parts of the world. The higher rates of hypovitaminosis in the sunniest areas of the world have been reported including Libya. The study aimed to evaluate the prevalence of vitamin D deficiency among adult population in Tripoli region, Libya, and evaluating some contributing factors including age, gender and obesity. **Methods.** A cross sectional study was conducted among 293 subjects (129 males and 164 females) whose ages ranged between 20-50 years in Tripoli region, Western Libya. Vitamin D levels were biochemically estimated by using enzyme immunoassay method. BMI was calculated for all participants (weight in kilogram / height in meter square). **Results.** Overall, the prevalence of vitamin D deficiency was 55.63%, out of which 25.58% in males and 79.26% in females, while 19.45% of participants had vitamin D insufficiency (23.25% in males and 16.46% in females). Furthermore, 24.91% of participants had vitamin D Adequacy (51.16% in males and 4.26% in females). The highest prevalence of vitamin D deficiency was in the age group 41- 50 years. The means of vitamin D deficiency were 13.93 ± 3.46 and 11.32 ± 4.16 in males and females respectively, and were statistically difference. Furthermore, there was significant difference in the means of vitamin D levels among the three groups (healthy weight, overweight and obese subjects). **Conclusion.** High prevalence rate of vitamin D deficiency was noted. Adapting proper lifestyle focused on maintaining health weight, sufficient sunlight exposure and increasing dietary intake of vitamin D can reduce the burden of vitamin D deficiency.

Keywords. Vitamin D, deficiency, insufficiency, adequacy and BMI.

Natural products and Dietary supplements intake during the COVID-19 pandemic among Libyans

Mohamed Alshintari, Huda Aldeeb , Sohaila bn Nagi and Hajer Moaket.

Libyan Biotechnology research center

Email: mohamedalshintari2018@gmail.com

ABSTRACT

Background and aims. Historically, the use of medicinal plants and dietary supplements as important option in facing the different diseases among Libyan nation was common. However, due to lack of proved treatment for covid-19, some people tend to the use of medicinal plants and dietary supplements as potential methods to make improvement and/or prevent symptoms related to COVID-19. Therefore, it is valuable to explore the most commonly utilized natural products during the COVID-19 pandemic and the medium of utilizing natural products, such as the sociodemographic individuality and knowledge about the COVID-19 infection among the public in Libya. **Methods.** An online questionnaire used convenience random sampling and social media platforms (facebook®, and WhatsApp®) to distribute a 15-item questionnaire across the Libyan general public aged 18 years and above. **Results.** Fifty percent of the 192 Libyan participants were infected by COVID-19. In addition, 75% of the respondents used natural products and/or food supplements to manage the symptoms of infection, whereas, 70% of participants used natural products to protect themselves from the infection. Only, 70% were aware of the benefits and side effects of the natural products used. Lemon was the most commonly used as a food supplement to increase immunity and reduce the chance of contracting COVID- 19. Vitamin C and Panadol were the most commonly used medicines to increase immunity and diminish the severity of the COVID- 19 symptoms. **Conclusion.** The dietary supplements among the Libyan during the COVID-19 pandemic are high. The study demonstrated that the general population in Libya has an appropriate level of knowledge about COVID-19 effects and symptoms. Investigate the benefits and risk of the natural products that used in Libyan community traditional medicines are highly recommended to be studied in future.

Keywords. COVID-19, Dietary Supplements, Herbal Medicines, Libyans.

The Impact Different Types of Thyroid Cancers on Thyroid Hormones (TSH, T3 and T4)

Magdoline Almehdawi*, Lubna Badi, Najua Ferrara, Salah Elbaruni

Department of Medical Laboratory Science, Faculty of Medical Technology, University of Tripoli, Tripoli, Libya.

Email. dody00001996@gmail.com

ABSTRACT

Background and aims. Thyroid cancer is the most common endocrine system malignancy, accounting for 3.8% of new cancer cases in the US and ranking ninth overall. Thyroid cancer has increased dramatically over the last three decades, indicating the disease's global severity. The purpose of this study is to determine the effect different types of thyroid cancers on thyroid hormones (TSH, T3 and T4). TSH, T3 and T4 levels monitored and analyzed in biochemistry laboratory. **Methods.** This study conducted in the Oncology and Endocrinology departments of Tripoli University Hospital (TUH) in a period of time from January to February 2023. A total of 70 thyroid cancer patients were targeted, and data collected using patients record file. Histopathology techniques such as fixation, washing, grossing, dehydration, cleaning, embedding, sectioning and staining and mounting was used for biopsy samples. 96% ethanol was used to fix thyroid fine-needle samples. Cobas e411 Fully Automated Machin was used to measure thyroid hormone levels in a biochemistry laboratory. Data analyzed using Excel Microsoft Office 2019 Plus. **Results.** 70 thyroid cancer patients were targeted and patients record files were used. TSH levels were increased (47.27%), for thyroid cancer patients. The percentage of T4 hormone levels was 40% in patients and increased 54.28% in other patients. Thyroid cancer had no proven effect on T3. Cancer has become more common over the years. Thyroid cancer struck 87.1% of females. Thyroid cancer incidence increased by 51% among people aged 20 to 40. 84% of cases had papillary thyroid carcinoma and 87.14% of cases were thyroidectomy. **Conclusion.** This study showed the effect of thyroid cancer on the TSH hormone and T4 hormone significantly higher, while T3 hormone was small to negligible. The percentage of thyroid cancer was higher in females than males, and the common age was 20 to 40 years old. Papillary was the most common. Thyroid cancer also effects anemia, TG, and PTH.

Keywords. Thyroid cancer, TFT, Thyroidectomy, papillary carcinoma, follicular carcinoma.

Association of Lipid Profile and Vitamin D Supplementation among Type 2 Diabetes Mellitus (T2DM) Libyan Patients

Hafsa Alemam^{1*}, Abdulla Bashein², Abdurrrhman Akarem¹, Hanan Aqeelah³, Fahima Alnagar².

¹Department of Environment, Food, and Biological Applications, Libyan Centre for Biotechnology, Tripoli, Libya

²Department of Biochemistry, Faculty of Medicine, University of Tripoli, Libya

³National Centre Control, Tripoli, Libya

Email. hafsaalemam@yahoo.com

ABSTRACT

Background and aims. Type 2 diabetes mellitus and hypo-vitaminosis D is recognized in Libya as a major public health problem affecting large proportion of the population. It is widely known that type II diabetes and hypo-vitaminosis D are very prevalent health problems worldwide. Vitamin D deficiency is an important risk factor in the pathogenesis and prevention of type II diabetes and hyperlipidemia. This study was conducted to determine the association of lipid profile and vitamin D supplementation among type 2 diabetes mellitus (T2DM) Libyan Patients. **Patients and methods.** Cross-sectional study was conducted at Al-Shark Medical Laboratory in Tripoli. This study included 180 participants 100 patients with type 2 diabetes mellitus and 80 clinically healthy volunteers as a control group and their age ranged from 26 to 59 years old. A full history and clinical examination were done for both patients and control cholesterol, triglycerides group. Fasting samples (12hrs) were analysed for lipid parameters including [total cholesterol, triglycerides, (HDL and (LDH)], serum 25 (OH) vitamin D level and blood sugar including fasting blood sugar, 2 hour postprandial and (HbA1c). **Results.** Our results showed that vitamin 25 (OH) D had statistically significant difference with serum lipid and lipoprotein variables in both type 2 diabetes mellitus patients and controls ($P=0.0001$). Moreover, differences between type 2 diabetes mellitus patients before and after supplementation of 25(OH) D were significant ($P> 0.0001$). There were negative association between 25(OH) D and TGS, TC, HbA1c and FBS whereas 25(OH) D was positively correlated with HDL-C and LDL-C. Our data showed significant improvements in serum FBG. The study reported that 25(OH) D influenced lipid profile and glucose of type 2 diabetes patients. **Conclusion.** It is recommended that it could be possibly benefit from a screening for 25(OH) D deficiencies may result in better blood glucose control and benefit the patient's overall health. Vitamin D can improve diabetes control and it is recommended that vitamin D supplementation should be taken in consideration in treatment of type 2 diabetes.

Keywords. Type 2 Diabetes Mellitus; Lipid Profile; 25(OH) D; Lipid Profile.

The Impact of Cigarette Smoking on Smokers' Pancreatic Hormones (Insulin and Glucagon)

Fatima Daw*, Hanady Fhima, Nidal Bilkhier, Salah Elbaruni

Department of Medical Laboratory Sciences, Faculty of Medical Technology, University of Tripoli, Tripoli, Libya

Email. Fatoobashir906@gmail.com

ABSTRACT

Background and aims. Cigarette smoking, directly and indirectly, affects organs and is the major cause of morbidity and mortality. Cigarette smoking causes cancer and may also affect the pancreas and cause diabetes. Two main pancreatic hormones (insulin and glucagon) are secreted into the bloodstream and may affect by cigarette smoking. The aim of this study is to determine the association between cigarette smoking and the incidence of type 2 diabetes mellitus. **Methods.** This study targeted 50 healthy participants (40 smokers and 10 non-smokers) aged from 20 to 60 years old. Samples were collected and analyzed in a biochemistry lab using a blood sugar test at Metega Hospital, Tripoli, Libya. **Results.** The results of this study indicated that the average smoking duration was 13.05 years, the average number of smoking cigarettes was 22.98 cigarettes a day, the average of volunteer's age was 32.98 years old. The average of blood sugar test was 105.60 mg/dl (maximum was 141 mg/dl and a minimum was 83 mg/dl) for the targeted volunteers. **Conclusion.** This study showed no significant effect of cigarette smoking on pancreatic hormones (insulin and glucagon) on type 2 diabetes mellitus, but the risk is expected.

Keywords. Cigarette Smoking, Pancreatic Hormones, Type 2 Diabetes Mellitus.

Hypomagnesemia in Type II Diabetes

Rehab Almgrbi, Ghada Amir, Hala Altuwati

Department of Medical Laboratory Sciences, Faculty of Medical Technology, The University of Tripoli, Libya Tripoli, Libya

Corresponding Email. rehabalmgrbi@gmail.com

ABSTRACT

Background and aims. Magnesium (Mg) is an important cofactor in a number of important enzymatic reaction and appears to play an important role in glucose metabolism and insulin homeostasis. Recently, various pieces of evidence point to a link between mg deficiency and type 2 diabetes. The aims of the study The present study was conducted to estimate serum mg levels in DM2 patients and to correlate these levels with pathogenesis. **Methods.** 70 samples were collected from males and females aged from 20 to 80 years to compare the level of mg in each of them, and the samples were divided into two groups, group1 (n=40) for patients with type II diabetes and group2 (n=30) for healthy people. People with other chronic diseases such as hypertension, heart disease and thyroid disease were excluded. The percentage of mg was determined in the (DIMENSION RXL MAX). **Results.** A total of 70 participants were included in this study, there were 49 females that represent 70% of our community whereas 21 males were represent 30 %. Results showed that 30 of participants (42.9%) were non-diabetic (Health) while the other 40 participants (57.1%) were diabetic (patients). Although there was a negative correlation between the two variables, this difference was not significant ($p = .0238$). **Conclusion.** Our research demonstrated an inverse relationship between magnesium levels and HbA1c in individuals with Type 2 Diabetes Mellitus. Our study adds to the existing evidence for this negative correlation, elucidating the intricate connections that give rise to this relationship. To obtain more precise results, future investigations conducted on a broader scale are imperative.

Keywords. T2D, Mg, HbA1C, DM2.

The Severity and the Degrees of Celiac Diseases at Tripoli University Hospital

Mawada Gergab, Rowiuda Elbarouni*, Nidal Bilkhier, Salah Elbaruni

Department of Medical Laboratory Sciences, Faculty of Medical Technology, University of Tripoli, Tripoli, Libya.

Email. Rowiudanouri@gmail.com

ABSTRACT

Background and aims. Celiac disease (CD) is a lifelong gluten-dependent autoimmune disease of the small intestine that affects genetically susceptible individuals worldwide. Patients with celiac disease have villous atrophy of the small intestine and are sensitive to dietary gluten. The prevalence of celiac disease among first-degree relatives is much higher than the prevalence of the disease in the general population. Several laboratory tests are becoming available to help diagnose and monitor celiac disease include serological tests for celiac disease-specific antibodies such as anti-TTG antibodies. The aim of this study was to identify villus atrophy in children with gluten sensitivity and to compare the severity and the degrees of celiac disease. **Methodology.** This study targeted 80 patients admitted at Tripoli University Hospital, Tripoli, Libya during a period of time from 2017 to 2022. Children's duodenal biopsies were examined to confirm or rule out celiac disease. IgA-TTG and IgG-DGL were measured and analyzed using MAGLUMI 600. Serologic analyses were used to compared to a histological examination. **Results.** In this study patients were divided into two groups; the first group was 57 patients had endoscopic examination aged between 1-18 years. Biopsy samples were taken from 3 regions (Duodenum, Jejunum and Small Bowel) and the most samples were from Duodenum region 32 (56%), followed by Jejunum 16 (28%), then Small Bowel 9 (16%). Celiac Disease (CD) is greater in females (37%) than in males (20%). Out of 57 patients, 24 patients were suffering from Marsh I, 10 and 18 patients were suffering from Marsh II and III respectively. Only one patient was suffering from (Marsh III) and 5 patients were normal. The second group was 23 patients had anti-tTG IgA test performed, 15 (65%) of anti-tTG antibody was IgA negative (Negative < 18 U/ml) and 8 (35%) of anti-tTG IgA was IgA positive (Positive > 18 U/ml). The level of tTG IgA greater in females (29.48 + 39.69) than in males (26.76 + 32.08) and these results were confirmed with recent findings. **Conclusions.** The degrees of duodenal damage in patients with celiac disease have a correlation between tTG titer. Celiac Disease (CD) and the level of tTG IgA is greater in females than in males. A duodenal biopsy is not always necessary to diagnose celiac disease.

Keywords. Celiac Diseases, Tripoli University Hospital, Duodenal Damage.

Effect of Surfactant Therapy on Newborn Lungs in Aljala Hospital

Sondos Alshaepy*, Maysam Ghashir, Hajer Hroda, Ragda Alwani, Mohammed Abuagela

Department of Anesthesia and Intensive Care, Faculty of Medical Technology, University of Tripoli, Tripoli, Libya.

Email. www.dosa99.com@gmail.com

ABSTRACT

Background and aims. Surfactant therapy is an established part of routine clinical management of babies with respiratory distress syndrome. The administration of surfactant decrease mortality, morbidity. An initial dose of about 100 mg/kg is usually needed to compensate for the well-documented deficiency of alveolar surfactant in these babies. This study conducted to evaluate the efficacy and safety of surfactant infants' lungs, and to assess the feasibility and effectiveness treatment of respiratory distress syndrome. **Methods.** This was an experimental study in which 111 neonatal aged from 25 to 41 weeks gestation were studied, Data regarding clinical outcomes including mortality and morbidity profile was collected and analyzed. **Results.** A single dose of surfactant was observed to be safe and effective in most cases, where the death rate in one dose was 10%. Dexamethasone administration shows decrease of the need to give surfactant for babies, and the death rate for mothers of infants was also lowered to 8.1%. Surfactant administration was more effective in male compared to female as the mortality rate in male was 7.9% and in females was 20%. **Conclusion.** Increase in the gestational age of newborns has direct proportional to the effectiveness of the surfactant administration. In addition, dexamethasone has an effect on the neonate if taken by the mother during pregnancy.

Keywords. Surfactant, Dexamethasone, Babies, Death.

C-Reactive Protein and Glycemic Control in Adults with Diabetes

Ebtehal Shaban*, Aya Ahmed, Hanan Duwayshiyah

Department of Medical Laboratory Science, Faculty of Medical Technology, University of Tripoli, Tripoli, Libya.

Email. Ebthalalsony4@gmail.com

ABSTRACT

Background and aims. Patients with diabetes, especially type 2 diabetes, who have poor glycemic control may be at a greater risk of cardiovascular disease than healthy people. C-reactive protein is an inflammatory marker and a significant risk factor for cardiovascular disease and its levels are elevated in people with diabetes. This study aimed to determine the relationship between CRP and hba1c in people with type 2 diabetes. **Methods.** 110 blood samples were collected (59 had type 2 diabetes and 51 were healthy). These samples were collected from different laboratories, including Al-Mukhtar Laboratory, Diabetes and Endocrinology Hospital, and Al-Fateh Clinic. HbA1C and CRP were evaluated for these samples and their levels were compared between the two groups. The results were analyzed statistically using IBM SPSS as mean \pm standard deviation (SD). P-value \leq 0.05 was considered statistically significant. **Results.** There were 25 (42.4%) males and 34 (57.6%) females had diabetes, and the values of the mean and standard deviation of HbA1C and CRP were (8.37 \pm 1.78 & 5.90 \pm 4.54; respectively), and were statistically higher in people with diabetes compared to those without (P= 0.00). **Conclusion.** There was an increase in CRP levels in subjects with poor glycemic control compared to the control group, which means that there is a possible relationship between glycemic control and systemic inflammation in people with diabetes.

Keywords. Diabetic, Glycemic Control, CRP, Hyperglycemia, HbA1C.

Medical Research Productivity and Barriers from the Faculty Members Prospects at the University of Tripoli

Safa Mohammed, Marwa Mohammed, Ghofran Alhemmati, Samah Fayad*, Ahmed Atia

Department of Anesthesia and Intensive Care, Faculty of Medical Technology, The University of Tripoli, Libya

Email. Samahfayad795@gmail.com

ABSTRACT

Background and aims. University-based research is critical for primary care, particularly in low- and middle-income countries like Libya. The current study was aimed at exploring the research productivity and potential barriers among academic medical staff at the University of Tripoli, Libya. **Methods.** A cross sectional questionnaire- based study was done at the university of Tripoli from the period of Nov 2022 to March 2023, to determine health research barriers among staff members in different medical faculties. Data were collected includes participant's demographics, years of experience as a faculty member, workplace, academic status, highest educational qualification, education type, and number of research published. It also contains questions around personal, access, administrative, and resource barriers to and facilitators of research activity. **Results.** A total of 132 questionnaires were distributed by the authors and only 102 were successfully answered, giving a response rate of 76%. Majority of participants 49(48.04%) conducted a cross-sectional study, followed by 34(33.3%) carried out a review study. The most important reason of doing research was due to improve knowledge of field by 62.75% of them, while 77.47% stated that they used and were comfortable of using advances in technology for working with research activities. The top barriers to research were a lack of financial support (76, 74.51%), followed by the complex publication process (43, 42.16%), while the lack of writing skills (4, 3.92%) were the bottom perceived barrier. **Conclusion.** The desire of understanding research appears to be motivated and lack of access to resources was the main barrier to increased research productivities. These factors may need to be taken into account when developing programs to promote research activities.

Keywords. Barriers, Publications, Primary Care, Research Productivity, Researchers.

Effect of Isolation and Characterization of Some Microorganisms on the Behavior of 2,2-Dichloropropionic Compound in Degrading Agricultural Soils

Najla Maiteeg, Elhassan D.

*Department of Biomedical Science, Faculty of Pharmacy, Misurata University Libya
Email. Manajla73@gmail.com*

ABSTRACT

This study aims to find out the effect of some measures on reducing the harmful effect of Dalapon®, 2,2-DCP, into the ecosystem widely. In this study, to isolate bacteria that can degrade and grow on 2,2-dichloropropionate as carbon source, characterize the isolated bacteria based on its microscopic observation and biochemical tests and identify the bacteria strain using 16S rRNA gen analysis. The results showed it was Gram-negative and rod in shape. The growth experiment indicated the isolates grew best in 20mM 2,2-DCP minimal media with cells doubling time of 44.2 hours. The chloride ion released was checked with 0.19mmol/L chloride from 20mM of 2,2-DCP. The isolated bacteria were also identified using 16S rRNA analysis using universal primer 16S_f and 16S_r. The results from 16S rRNA analysis showed the isolated bacteria had 97% identity to Pseudomonas sp. The isolated bacteria had optimum doubling time 44.2 hours in 20mM 2,2-dichloropropionate at 30°C. Chloride ion released from bacteria grown in 20mM 2,2-DCP was recorded at the highest of 0.19mmol/L. Results of 16SrRNA analysis showed the Na1 bacteria had 97% similarity to Pseudomonas aeruginosa. It gave positive results for Catalase, Oxidase, Citrate Agar, Gelatin Liquefaction, Phenol Red Broth Base and Lactose Utilization and gave negative results for Triple Sugar Iron and Urease and Indole. The biochemical tests results were correlated to 16S rRNA analysis as expected.

Keywords. Dalapon®, 2,2-DCP, Isolate Bacteria, 16S rRNA Gen Analysis, Pseudomonas spp.

Evaluating the Behavior of Libyan Population in Using Prescribed and Non-Prescribed Analgesics

Elmahaishi N^{1*}, Maiteeg N², Elhassan D²

¹*Department of Pharmacology & Toxicology, Faculty of Pharmacy, Misurata University, Libya*

²*Department of Biomedical Science, Faculty of Pharmacy, Misurata University, Libya*
Email. Manajla73@gmail.com

ABSTRACT

Analgesics are usually used to relieve pain and inflammation analgesics are widely utilized, but do not tell anything about either the factors behind analgesic use or how over-the-counter (OTC) analgesics are being used. The research aimed to study the prevalence of frequent use of prescribed and OTC analgesics. It has been also investigated the background factors related to frequent analgesic use and assessed rationality of analgesic usage patterns. addressed a survey to a random stratified population sample of 758, people aged 1 to more than 60 years. The risk of misuse of NSAID has been studied and explained. People's behavior towards the use of painkillers has varied, these were the most important recommendations, People who aged more than 45 years consulting their healthcare professional. Whereas, the younger participants were relying on the reading of the leaflet by their own selves. It has been found that there is diabetic patient who are taking sugar coated NSAID such as Ibuprofen. Which may lead to increase in their blood sugar level. There also has been found that asthmatic participants taking NSAID and that may lead to increase the asthmatics attacks. Therefore, caution must be taken when using analgesics because of their potential health harm at all levels, and the use must be subject to medical and pharmacist supervision.

Keywords. Analgesics, Over-The-Counter (OTC), NSAID, Asthmatics and Diabetic.

Self-Medication with Antibiotics Without Prescription Among Students of Faculty of Medical Technology at University of Tripoli

Malak Almurabit*, Nour Kharbeesh, Masouda Smoaa, Malak Elba, Hossam Elmahmoudi

Department of Anesthesia and Intensive Care, Faculty of Medical Technology, The University of Tripoli, Libya

Email. Malakr22amadan@gmail.com

ABSTRACT

Background: Self-medication is the administration of medications without a medical prescription to manage self-diagnosed health problems or symptoms. Self-medication with antibiotics is a global phenomenon, and it is more common in developing countries due to poor regulatory controls. This study was conducted to assess the pattern of antibiotic use without prescription among students of faculty of medical technology.

Methods. Pre-validated questionnaire was distributed through Google forms, and students were asked to report antibiotic use with or without prescription in the year 2022. The questions covered demographic information as well as frequency of antibiotic use, completion of course, condition for which it was used and type of antibiotic used. A total of 177 forms were completed. **Results.** The majority of students (135 with 76.3%) were females and most of them 86.9 % were in the age group of 18 – 25 years' old. Prevalence of antibiotic use with and without a prescription was high (42.9%). Among the survey participants who utilized an antibiotic without a prescription, 17.4% they stopped the use of antibiotic without finishing the antibiotic course. The most frequently named antibiotic was bought without a prescription was Augmentin®. Tonsillitis, flu, upper respiratory tract infection, and urinary tract infection were the conditions for which antibiotics were used. **Conclusion.** The results clearly show high prevalence of antibiotic use with and without prescriptions. Irrational use of antibiotics is common among university students and need effective interventions directed to increase students understanding of the problems associated with such practice. Educational programs should be established to increase awareness of students, the prescribing physicians and the pharmacists of responsible self-medication in general and rational antibiotic use.

Keywords. Self-Medication, Antibiotics, Prescription, Students.

Isolates of Escherichia coli among Urinary Tract Infection patients and Antibiotics resistance in medical laboratory At Ali Omar Askar Hospital

Khawla Hasan, Woroud Albasheer, Mohamed Alrreshi

Higher Institute of Science and Technology, Souk El Khamees, Emsihel, Libya

Email. koka.ha29@gmail.com

ABSTRACT

Aims. To determine the common uropathogens E. coli found in patients with urinary tract infections and to assess their antibiotic susceptibility patterns in medical laboratory at Ali Omar Askar Hospital, Tripoli, Libya. **Methods.** 37 patients with age ranging from 6 up to 60 years of both genders with a features of UTI, E.coli was a causative agent found in 25 of them, culture urine samples on selective (MacConkey agar) and enrichment media (blood agar) and CLED agar to uptake standers colonies, then A-antimicrobial susceptibility testing was conducted on Mueller-Hinton Agar plates using Kirby-Bauer test and the results were expressed as susceptible or resistant according to the criteria recommended by the Clinical and Laboratory Standards Institute (CLSI). **Results.** The resistance rates detected were 100% to Ampicillin, 100% to Amoxicillin/clavulanic acid, 68% to Cefixime, 60% to Gentamicin, 52% to Imipenem, 36% to Cefuroxime, 36% to Sulphamethoxazole, 32% to Ciprofloxacin, 28% to Nalidixic acid, 12% to Nitrofurantoin, 12% to Ceftriaxone, 8% to Chloramphenicol except Amikacin and Enrofloxacin highly sensitive 100%. **Conclusion.** UTIs cause a significant amount of morbidity and mortality. In E. coli from UTI there is high resistance rates to antimicrobial agents. The antibiotic resistance is a global problem and requires taking measures to combat this growing problem. These findings offer help to clinicians in deciding the appropriate empirical treatment for patients and emphasize the increasing problem of antimicrobial resistance in Libya. **Keywords.** Isolates, Escherichia coli, Urinary Tract Infection patients, Antibiotics.

Risk Factors Comparison of Hospital Pressure Ulcers Between East and West in Libya

Esra Watila*, Raghda Alwafi, Rodina Alryani, Walaa EljHEMEI, Mohamed Abuagela

Department of Anesthesia and Intensive Care, Faculty of Medical Technology, The University of Tripoli, Libya

Email. esra.watila44@gmail.com

Background and aims. The occurrence of pressure ulcers not only increases hospitalization time with pain and economic burden, but also causes medical disputes. A better understanding of this condition will increase knowledge and facilitate the ability to recognize and prevent pressure ulcers for clinical nursing staff. **Methods.** This study was conducted by filling out a questionnaire by department doctors as it was shared in many hospitals in the east and hospitals in the west and east a group of cases in the family had witnessed this procedure. **Results.** In this study the results are explained in the comparison between East and West. The most chronic diseases that cause pressure ulcers are diabetes, with a rate of (85.7%) in the east and (87.9%) in the west, while high blood pressure (65.7%) in the east and (45.5%) in the West and the most common age was (60-80) years, with a rate of (74.3%) in the east and (48.6%) in the west. The location of the pressure ulcer was in the back (71.4%) in the east and (22.9%) in the west and about stages showed that (stage 1) is the most common in the east and (stage 3) in the west and the most common gender in east is female (57.1%) and male in west (60%). **Conclusion.** Overall, there is no single factor which can explain pressure ulcer risk, rather a complex interplay of factors, which increase the probability of pressure ulcer development. The review highlights the limitations of over-interpretation of results from individual studies and the benefits of reviewing results from a number of studies to develop a more reliable overall assessment of factors which are important in affecting patient susceptibility.

Keyword. Risk factors, Pressure ulcer, east, west, Intensive Care Unit, Medical device.

Association of ABO/Rh Blood Group with Hypertension in Pre and Postmenopausal Libyan women

Olla Bashimam*, Falak Jebali

Department of Medical Laboratory Science, Faculty of Medical Technology, University of Tripoli, Tripoli, Libya.

Email. ollabashimam@yahoo.com

ABSTRACT

Background and aims. Hypertension is a prevalent and significant public health issue worldwide, affecting a substantial portion of the population. While various risk factors have been implicated in the development of hypertension, including genetics, lifestyle, and hormonal changes, the role of ABO and Rh blood groups in hypertension remains underexplored, particularly in different stages of Libyan women's life. This research study aimed to investigate the potential association between ABO and Rh blood groups and hypertension in both pre- and post-menopausal Libyan women. **Methodology.** A cross sectional study was conducted over a two-month period on a diverse cohort of women aged 35 to 75 years. It involved a total of 200 hypertensive women divided equally into pre- (n=100) and post-menopausal (n=100) groups. It took place at Tripoli University Hospital, Tajoura Heart centre and Total Care Clinic. Data were collected through structured interviews, clinical examinations, and blood sample analyses. Blood pressure measurements and blood group typing were performed using standard medical procedures. A statistical analysis was performed using SPSS program version 26.0. **Results.** The distribution of ABO blood groups shows that blood group O is the most prevalent blood group among samples (58% in the pre-menopausal and 41% in post-menopausal hypertensives), whereas blood group AB is the least prevalent (only 9% in the pre-menopausal and 7% in post-menopausal hypertensives). One hundred and eighty-one (90.5%) were Rh +ve. Our research revealed significant differences in age distribution as well as in the percentages of Rh +ve and Rh -ve blood groups among pre- and post-menopausal women ($p < 0.05$). However, we did not observe any statistically significant differences in blood pressure measures associated with blood groups ($p > 0.05$). **Conclusion.** This study showed that ABO / Rh blood group system does not significantly affect blood pressure indices among the pre-menopausal and post-menopausal women. Findings of present study also illustrated that age could potentially influence the connection between blood groups and hypertension. Additionally, among ABO and Rh blood groups, the most observed type was 'O.' However, further investigation is necessary to validate these initial results and better understand the underlying mechanisms behind this relationship. **Keywords.** ABO/Rh Blood Group, Hypertension, Pre and Postmenopausal, Libyan women.

Insulin Pump Utilization in Libya

Eman Elmahjoubi*, Mufida Yamane

Department of Pharmaceutics, Faculty of Pharmacy, University of Tripoli, Tripoli, Libya.

Email. elmahjoubi_7514@yahoo.co.uk

ABSTRACT

Background and aims. Diabetes Mellitus (DM) is a threat to peoples' lives around the world. Insulin pump therapy (IPT) by itself is not a new therapy for DM, it is an alternative delivery mechanism for administration of insulin and is found to be superior to ordinary syringes and insulin pens. When insulin is administered subcutaneously via a properly programmed insulin pump, delivery of insulin is expected to mimic the insulin release pattern of a normal healthy pancreas better than other modalities of insulin delivery. Therefore, insulin pumps became a treatment option for patients with Type 1 diabetes mellitus (T1DM) and those with Type 2 diabetes mellitus (T2DM). However, information on how health care providers manage these devices and their knowledge about them is still lacking in Libya. This study was conducted to examine the knowledge and experiences of Libyan health care providers (HCPs) regarding the characteristics and use of insulin pumps. **Methods.** The main three referral hospitals about insulin pump therapy in the western side of Libya: Diabetes and Endocrinology Hospital, Tripoli University Hospital and El-Galaa Hospital were included in the study. A survey-based study was conducted during the period of September 2020-December 2020. A questionnaire targeted seventy-two HCPs with work experience of (1-40) years and who work on insulin pump were interviewed. **Results.** It has been found that physicians and pharmacists had the highest knowledge followed by nurses and dietitians and then analysis technologist came last (90%, 83%, 70%, 65% and 43%) respectively. **Conclusion.** This study revealed that the knowledge among HCPs on insulin pump therapy in the western side of Libya was satisfactory.

Keywords. Diabetic-Care Team, Diabetes Management, Diabetes Mellitus, Health Care Providers, Insulin Pump Therapy.

Preliminary Study of Vitamin D Deficiency and Its Associated Risk Factors in Libya

Abdulati Salem¹, Abdusalam Mahmoud², Mahmud Abushhewa^{3*}, Ramzi Mohsen⁴

¹Department of Biochemistry, Faculty of Medicine, University of Misrata, Libya

²Department of Preventive Medicine, Faculty of Veterinary Medicine, University of Tripoli, Tripoli, Libya.

³Department Biochemistry and Molecular Biology, Faculty of Medicine, Azzaytuna University, Libya.

⁴Department of Pharmacology and Toxicology, Faculty of Medicine, Azzaytuna University, Libya.

Email. alhmroni832004@yahoo.com.au

Abstract

Background and aims. 1,25-dihydroxy vitamin D3 (cholecalciferol), the hormonally active form of vitamin D3 plays a crucial role in maintaining vital body system functions through protection against various metabolic disorders and serious diseases. Vitamin D deficiency (VDD) associated with various complications. In Libya, vitamin D testing and the use of vitamin D supplements have increased extensively in recent years. Consequently, abuse of vitamin D therapy without following updated therapeutic guideline resulted in poor clinical outcome. This study was conducted to investigate vitamin D level among the target population and its associated risk factors in Libya. **Methods.** A cross-sectional study was conducted to investigate Vitamin D level and its associated risk factors in Libya during 2022-2023. 192 serum samples were tested in private laboratories. A structured designated questionnaire was filled in containing all the relevant information. Descriptive analyses frequency and percent were measured for numerical data, number, and percent for qualitative data using SPSS version 22. The chi-square test and student t-test were used for the data analysis and to investigate the level of association among variables at the significance level of $p < 0.05$. **Results.** The ratio of female to male included in this study was estimated to be (77.04%) and (22.96%) respectively. Our results reported mean average of vitamin D level among male (15.59 mg/dl), while in female (11.45 mg/dl), the results reported sex based significant difference ($p = .00009$). The present study results reported an overall average (12.40 mg/dl) of vitamin D level. Regarding the age categories, our results reported variables difference in the vitamin D levels, however there is no statistically significant difference ($p = 0.894$). The results showed that the use of vitamin D supplements for hypovitaminosis did not significantly influence on therapeutic outcome. **Conclusion.** The mean average of vitamin D level among male was significantly higher than those in female, however, both vitamin D levels in the two groups are in the deficiency category. Interestingly the group who received treatment of vitamin D, their vitamin D level was lower than the group who did not receive treatment. This study recommends further expanded national studies should be conducted to include more variables of data.

Keywords. Vitamin D, Risk Factors, Hypovitaminosis, Libya.

Effect of Hemodialysis on the Blood Glucose in AlKhoms Kidney Services Center

Abuneea Esadawi*, Fatimah Buhour, Atiga Albakoush

Faculty of Medical Technology, Elmergib University, Libya

Email. abuneezae@gmail.com

ABSTRACT

Aims. This research was targeted to evaluation the effect of hemodialysis on blood glucose in renal failure patients pre and post dialysis. **Methods.** it was included 100 patients diagnosed with renal failure disease, at Alkhoms Kidney Services Center. 3ml of fresh venous blood was collected from HD patients pre and post dialysis for determination of glucose level. Results showed that the mean value of glucose before dialysis process is (less than 60 mg/l) and post dialysis (less than 109 mg/l), indicating significant differences between the mean value of glucose before and post dialysis process, this indicates that the level of glucose post dialysis decreased than pre dialysis process. **Conclusion.** It concluded that the level of blood glucose in renal failure patients is pre hemodialysis greater than post hemodialysis, which means there is a clear effect of hemodialysis on blood glucose level.

Keywords. Chronic Renal Failure, Hemodialysis, Glucose levels.

Physical Activity Pattern among Libyan Diabetes Patients: A Cross Section Study

Nahed Shalf, Shomokh Bensaleh, Waed Abu grba, Ahlam Elkheshebi*

Department of Physiotherapy, Faculty of Medical Technology, University of Tripoli, Tripoli, Libya.

Email. nahedismail20@gmail.com

ABSTRACT

Background and aims. Patients with type 2 diabetes mellitus (T2DM) are at great risk to experience diabetic complications, which can have an impact on body functions. The management of diabetes mellitus can be greatly benefited by physical activity (PA). However, in Libyan society the extent of physical activity a (T2DM) patients engages in still needs to be studied. The aim of this study is to investigate PA levels among Libyan patients with T2DM and explore the associations between PA and socio-demographic characteristics of the participants. **Methods.** A random sample of 200 patients who attended the outpatient clinic at the diabetes and endocrinology hospital in Tripoli were randomly selected to participate for this descriptive cross-section study. Sociodemographic and clinical variables were recorded. Additionally, physical activity was assessed using International Physical Activity questionnaire. **Results.** The outcomes showed that 60.5 % of participants were females, 72% of patients were over 50, and 80.5% were married. Only 37.5% of participants had primarily school education, while 20% were retired. 24% of study sample had normal BMI and 87.5% were non-smokers. The majority of the patients experienced complications from diabetes, and 58% of them had retinopathy. Oral metformin was reported to be the drug most frequently used, whether as part of a single or combined therapy plan. 82.5% of patients had HbA1c levels above 7%, and 63.5% of them had been diabetic for at least 10 years. Regarded to the relationship between HbA1c level and patters of PA higher percentage of participants were engaged in modern intensity PA had HbA1c level more than 7%. **Conclusion.** The participants in this study reported engaging in moderate intensity of physical activity, however, there is a high level of uncontrolled glycemia. The findings also suggested that additional public health efforts be used to address the disease.

Keyword. Physical Activity, Type 2 Diabetes Mellitus, HbA1c Level. Socio-Demographic Characteristics.

Progesterone Synthetic Hormone (Ducstan) Genotoxicity by Using *Allium cepa* Bio-assay and RAPD Technique

Fauzia El-garabulli*, Asma Alilesh

Department of Genetics and Biotechnology, Misurata University, Misurata, Libya
Email. fauzia.elgrabulli@gmail.com

ABSTRACT

Many epidemiological studies have established a strong association between prenatal environmental factors and autism's outcome in offspring. Maternal hormone imbalance has been found to be a significant risk factor for autism. Therefore, prenatal exposure to synthetic progesterone is speculated to induce autism behavior. In this study, progesterone genotoxicity was investigated using the *Allium cepa* assay. The result of treated cells showed a clastogenic effect that indicates progesterone interaction with DNA molecules during cell division (chromosome aberrations) such as anaphase bridges, DNA fragments and micronuclei. The results also showed cytotoxic action of the synthetic hormone, such as cytomix, disturbed nuclear membrane, c-metaphase, and early chromosome condensation in prophase. Cell division inhibition at interphase was also observed. The interaction of the widely used synthetic hormone (Ducstan) in Misurata with DNA was documented by RAPD technique using random primers. PCR product on gel electrophoresis showed changes in DNA profile such as band thickness, pattern of migration, gain and loss bands. The chromosome aberration and changes in DNA profile are evidence of synthetic hormone genotoxicity that may be linked to autism.

Keywords. Synthetic Hormone, Autism Risk Factor, Genotoxicity, RAPD, *Allium Cepa* Assay.

Evaluation of Electrolytes Imbalance, Anaemia and Dyslipidemia in Type 2 Diabetes Mellitus in Elmergib, Libya

Ismail Alhwij*, Ali Aborakis, Esra Ben Noor, Mansour Ghazi, Mohmmmed Abu Weden, Zohor Mansour

Department of Medical Laboratory, Faculty of Medical Technology, Elmergib University, Libya.

Email. alhwij.m@gmail.com

ABSTRACT

Background and aims. Type 2 diabetes mellitus (T2DM) is characterized by chronic hyperglycaemia resulting from defects in insulin secretion and/or insulin action and metabolic disorders of protein and lipids. Diabetic dyslipidaemia is a risk factor of the early development of coronary heart disease (CHD). Electrolyte imbalance also are common in diabetic patients and may be associated with increased morbidity and mortality. Furthermore, Anaemia in diabetic patient has a significant adverse effect on quality of life. Therefore, early detection of anaemia, dyslipidaemia and electrolyte imbalance may reduce the prevalence of complications in T2DM. This observational cross-sectional study was carried out to show the prevalence of anaemia, dyslipidaemia and electrolyte imbalance in T2DM patients. **Methods.** A number of 53 T2DM patients' demographic, biochemical and clinical data was collected from Zliten Medical Centre, Diabetes and Endocrinology Centres and Bin Haider Medical Laboratory in Alkhoms & Zliten municipalities. The raw data was classified and then analysed by the SPSS software. **Results.** The results show that hypomagnesaemia is found to be prevalent pattern of electrolyte imbalance in T2DM patients (42/50) 84%. Hypertriglyceridemia (25/50) 50%, high VLDL (25/50) 50% and high LDL-cholesterolemia (20/50) 40%. Anaemia is shown to be endemic in T2DM patients which was determined by Hb level and found to be (39/50) 78%. Furthermore, T2DM was found to be uncontrolled in almost all of the study's patients (49/50) 98%. **Conclusion.** Anaemia and dyslipidaemia are very common in our study and high electrolyte imbalance is only represented by hypomagnesaemia.

Keywords. Type 2 Diabetes Mellitus (T2DM), Electrolyte imbalance, Anaemia, Hypomagnesaemia, Hypertriglyceridemia, Hb.

The Reality of Healthy Living for The Elderly in Libya

Areej Muhammad, Amna Ramadan, Naira Altughar*

Department of Public Health, Faculty of Medical Technology. The University of Tripoli, Libya.

Email. Noornena19@gmail.com

ABSTRACT

Background and aims. Providing health care with dignity and respect for those who have given so much. A journey of discovery to present the reality of healthy life for the elderly, with the aim of providing creative electronic solutions that contribute to improving their quality of life and preserving their dignity. The qualitative studies presented in this document were conducted to determine the relationship between the elderly and technology. **Methods.** 20 semi-structured interviews were conducted with people over 60 years of age, 18 of whom were from nursing homes for the disabled and the elderly, and the rest of the interviews were from other places. We used a grounded theory methodology that relies on an iterative and simultaneous process in all data, coding, developing categories, and comparing data. **Results.** One of the main findings that we reached is that the elderly mainly uses the mobile phone for communication, while they use the television for learning and entertainment. Although the vast majority of the elderly are able to use these devices easily, there are some difficulties that some of them face in using them, such as educational and personal difficulties. **Conclusion.** Based on the study, it seems that older people view technology as a useful tool that can improve their lives, but they also have concerns about its complexity. They are interested in using modern technologies, but they need easy-to-use interfaces and customized features that meet their specific needs. By designing technology that is accessible and usable for older adults, we can help them reap its benefits and improve their overall quality of life.

Keywords. Health Care, Healthy Life, Elderly, Quality of Life, Dignity.

Seroprevalence and Potential Risk Factors of Hepatitis E Virus Infection among Pregnant Women in Tripoli, Libya

Asmaa Abdullah¹, Khdeeja Ammara², Lubna Kshedan³, Abdurrazag Nami⁴, Abdusalam Sharef^{5*}

¹*Al Shaheed Health Center, Hey Allandale's Medical Services, Libyan Ministry of Health*

²*Quality and Patient Safety Office in the Medical Reference Laboratory, Tripoli - Libya.*

³*Department of Clinical Skills, Faculty of Medicine, University of Tripoli - Libya.*

⁴*School of Basic Science, Libyan Academic, Tripoli*

⁵*Department of Preventive Medicine, Faculty of Veterinary Medicine, University of Tripoli*

E-mail: abd.mahmoud@uot.edu.ly

ABSTRACT

Background and aims. Hepatitis E virus (HEV) is considered one of the public health important zoonotic diseases and is well-documented to cause significant risk overall the pregnancy terms vary from self-limiting to life-threatening for pregnant women and their offspring. This study was conducted to investigate the seroprevalence and potential risk factors associated with HEV infection among pregnant women in Tripoli, Libya. **Methods.** A total of 180 serum samples were collected from pregnant women from March to October 2022 at Reference Medical Laboratory in Tripoli, Libya. Serum samples were screened by Enzyme Immunosorbent Assay against anti-HEV IgG using commercially available ELISA kits (DIA.PRO HEV IgG ELISA, Italy). Statistical significance associations between dependent and independent variables were evaluated using the Chi-square test. P-value < 0.05 was considered an indicator of statistical significance. **Results.** The overall seroprevalence rate was estimated to be 10% (18/180); CI 95%= 5.62%-14.38%). The highest seroprevalence of HEV was 60 (23.33%; 95% CI= 12.63%-34.04%) among pregnant women 35-45 years of age, the results revealed a statistically significant among age groups (P=.0001). Women in the third trimester reported the highest HEV seroprevalence (11.18%; 95% CI= 6.02%-16.36%). **Conclusion.** The present results highlighted a potential risk of HEV infection among pregnant women in the country and an increased risk of potential exposure to HEV infection. Further national studies should be conducted to evaluate the seroprevalence, and determine the molecular epidemiological patterns, and phylogenetic analysis should be considered.

Keywords. HEV, Seroprevalence, Risk factor, Libya.

Prevalence of Urinary Tract Infection among Libyan Diabetic Patients

Hadeel Sager*, Maram Abidi, Maryouma Aghil

Department of Medical Laboratories Sciences, Faculty of Medical Technology, Tripoli University

Email. hadelaa.com@gmail.com

ABSTRACT

Background and aims. Diabetes mellitus (DM) is a common metabolic disorder characterized by high blood sugar levels. The prevalence of diabetes has been increasing rapidly in recent years, with an estimated 451 million people currently living with the disease worldwide. Diabetic patients are at higher risk for various infections, including urinary tract infections (UTIs), due to their compromised immune system and poor blood sugar control. UTIs are particularly common in diabetic patients and can lead to complications if not properly managed. This study was conducted to assess the prevalence of UTIs among Libyan diabetic patients by determine the types of bacteria and their antimicrobial susceptibility patterns. **Methods.** A total of 55 diabetic patients from different age groups attending in Diabetes and Endocrinology Hospital in Tripoli, Libya from June to July 2023, were included in the study. Data regarding age, sex, type, and duration of diabetes, as well as glycated hemoglobin (HbA1c) and fasting blood sugar (FBS) levels, were collected. The collected data was analyzed using IBM SPSS version 22 software. Urine samples were obtained from all diabetic patients by clean voided midstream technique, urine culture and antimicrobial sensitivity testing were done. **Results.** The prevalence of UTI among diabetic patients was 15%. Furthermore, the prevalence among females was higher than males. The most common organism identified was Escherichia coli, which showed resistance to antibiotics such as ampicillin, gentamicin, and ceftriaxone. Staphylococcus aureus, however, did not show resistance to any of the antibiotics used in the study. **Conclusion.** UTIs are a prevalent issue among diabetic patients. Proper control of diabetes with regular screening for HbA1c and UTI among diabetic patients is needed to ensure proper treatment and prevent complications.

Keywords. Diabetes mellitus, UTIs, Antibiotic sensitivity.

The Clinical and Hormonal Profile of Polycystic Ovary Syndrome among Libyan Women Attending Infertility Center Tripoli-Libya

Noor Alhoda Benissa¹, Maysm Abofaed¹, Hend Alqeeyadi², Eshraq Alsherif^{1,3*}

¹Department of Medical Laboratory University of Tripoli Alahlia, Tripoli-Libya

²Infertility Center Tripoli-Libya

³Department of Prosthodontics Dentistry Collage, University of Tripoli, Tripoli, Libya.

Email: Eshraq.Alsherif@uot.edu.ly

ABSTRACT

Background and aims. Polycystic ovarian syndrome (PCOS) is the most common heterogenic endocrine illness in women of reproductive age, caused mostly by an excess of androgen and ovarian dysfunction. The present study was carried out to estimate the prevalence of PCOS among Libyan women who attended infertility centers in Tripoli, Libya, from 2020–2022, evaluate their hormonal profiles (BMI, weight, and west circumferential) before and after treatment, and manage their diet. **Methodology.** A longitudinal cross-sectional study was conducted in the Infertility Care Center in Tripoli, Libya. The study population consisted of Libyan female patients who presented to the gynecology and obstetrics (OPD) department and therapeutic nutrition department. Data were collected from 2020 until 2022 and diagnosed using Rotterdam's criteria. A self-designed data collection form was prepared for recording information about each PCOS patient. This included a detailed medical history, examination results, hormonal levels, body mass index (BMI), height and weight, and waist measurements before and after treatment. **Results.** A total of 603 patients visited the gynecology and obstetrics (OPD) department and the therapeutic nutrition department between January 2020 and December 2022, 174 women in the PCOS group and 429 in the non-PCOS group; the prevalence of PCOS was 29.56% in 2020, 37.5% in 2021, and 20.27% in 2022. The mean age of PCOS was 34.90 ± 5.5 SD, and all of the PCOS group was married. It is worth noting that all PCOS cases were insulin resistance. In terms of weight in the PCOS group, we discovered that 19.54% were obese with a BMI >29, 68.96% were morbidly obese with a BMI >35, and approximately 68.39% of waist circumference measurements were more than 88cm. Comparing the mean of weight, waist circumference, and BMI records before and after therapy, as well as food management and lifestyle changes, by using a paired sample t test, the difference between the two means had a highly significant p value (0.000001). In addition, the mean of the hormonal profile before and after therapy, as well as food management and lifestyle changes, were investigated by using a paired sample t test. The difference between the two means had a significant p value (0.0001) for the vitamin D test. **Conclusions.** Hirsutism and oligomenorrhea are the major clinical features; obesity seems to be more prevalent in Libyan PCOS patients; and the vitamin D hormone has been shown to have an important role in PCOS therapy.

Keywords. Polycystic ovarian syndrome, Obesity, Body mass index, Infertility center, Tripoli, Libya.

The Knowledge and Awareness of Libyan Dentists Regarding COVID-19 Infection Control Precautions in Dental Clinics

Eshraq Alsherif^{1,2*}, Inas Alhudiri³, Mouna ElJilani³, Ahmad Ramadan³

¹*Department of Prosthodontics, Dentistry College, University of Tripoli, Tripoli, Libya*

²*Department of Medical Laboratory University of Tripoli Alahlia, Tripoli-Libya*

³*Department of Genetic Engineering, Libyan Biotechnology Research Centre, Tripoli-Libya.*

Email: Eshraq.Alsherif@uot.edu.ly

ABSTRACT

Background and aims. The world faced a major global health threat called COVID-19. Dental clinics are one of the most high-risk health facilities for COVID-19 transmission, having the potential to transmit the virus via routine dental procedures. The present study was carried out during periods of high surge of cases to assess the essential knowledge, awareness, and preparedness of Libyan dentists regarding COVID-19 and IC in dental clinics. Method: A self-designed electronic questionnaire was administered through e-mail to 500 dentists, and 308 dentists participated in this cross-sectional survey. Ethical approval was obtained from the Bioethics Committee of the Biotechnology Research Centre (No. BEC.BTRC0 25-2020), while informed consent was obtained from the subjects for their willingness to participate in the study. Participation in the study was voluntary and personal information was not collected from the study subjects. Statistical analysis was performed using SPSS version 25. **Results:** The majority of respondents 64.3% were between 25-35 of age, more than half 60.7% held a bachelor's degree. 63.3% of subjects attended general infection prevention control (IPC) courses, and only 36% attended courses dealing with COVID-19 suspicion in dental clinics. Moreover, less than half of respondents 41.2% obtained knowledge and education about COVID-19 from WHO, USCDC, and LNCDC websites. In addition, there were statistically significant differences in questions about the knowledge of dentists about the COVID-19 pandemic, hand hygiene practice, and personal protective equipment by different demographic variables: age, gender, education level, health sector, and years of practice ($p < 0.05$). **Conclusions:** The findings of the present study showed an acceptable level of knowledge about COVID-19 and hand hygiene practices. Nonetheless, some notable deficiencies in knowledge existed among dental professionals regarding some vital aspects like the sequencing of the donning of PPE and filtering of the facepiece respirator (i.e., N95). Therefore, there is a need to improve dentists' knowledge through health education and training programs.

Keywords: Libyan dentists, COVID-19, infection control, dental clinics, 2020.

Comparative Study of the Haematological Parameters and Biochemical Factors for Cupping (Hijamah) blood versus Venous Blood.

Mohamed Gazet^{1*}, Jasmine Abu Shaala²

Faculty of Healthy sciences, Misrata University, Libya

Health care unit, Ras Al-Sayeh, Misurata, Libya

Email. drmahamedgasset@gmail.com

ABSTRACT

Background and aims. Cupping therapy is considered one of the ancient therapeutic methods and still practiced to the present time in many countries of the world, and it was used in Islamic medicine, it is an alternative medicine and was recommended by the Messenger of God, Muhammad to treat a range of diseases, it is desirable to work it on odd days (17, 19, 21) and it is preferable that the patient is fasting. The purpose of the study comparative Study of the haematological Parameters and Biochemical Factors for Cupping (Hijamah) versus Venous Blood. **Methods.** The study was conducted on the reluctant cases of the Faisal Cupping Centre. Total of cases 22 patients in the period from 1 to 30 June 2022. Measuring some haematological and biochemical parameters for cases. **Results.** The results obtained is that haematological of venous blood indicators are high compared to cupping blood, while biochemical parameters are high in cupping blood compared to venous blood. **Conclusion.** We find that wet cupping has an effect on some biochemical indicators, especially the percentage of blood sugar, cholesterol and triglycerides, while a slight effect on the rest of the indicators.

Keywords. Comparative Study, haematological Parameters, biochemical parameters, Cupping blood, Venous Blood.

Prevalence of Anemia in Libyan Patients with Celiac Disease Before and After Gluten Free Diet Intake

Malak Alelwani, Thana Abuhilika*, Khaled Elbaruni, Eman Abdulwahed

Department of Medical Laboratories Sciences, Faculty of Medical Technology, Tripoli University

Email. thanataher82@gmail.com

ABSTRACT

Background and aims. Celiac disease (CD) is also known as gluten-sensitive enteropathy, is a digestive and autoimmune disorder that causes damage to the lining of the small intestine when foods containing gluten are eaten. A gluten-free diet (GFD) is the only effective treatment for resolving CD symptoms. It helps to improve intestinal atrophy and also lead to reduced inflammation and thus the gradual correction of anemia. This study aimed to estimate the incidence of anemia among celiac patients before and after their intake of a gluten-free diet. **Methods.** A retrospective cross-sectional study was conducted in different departments of; internal medicine, gastroenterology, and pediatrics at Tripoli University Hospital, Tripoli, Libya. The study data were retrospectively extracted from the clinical files of 100 patients who diagnosed with celiac disease (CD). Hematological results of complete blood count (CBC) for each patient before and after induction of GFD for one year were collected from the medical records. The data was analyzed using IBM SPSS version 26 software. **Results.** Out of 100 celiac disease patients, 53 patients were females and 47 patients were males. The analysis showed that the values of RBC, Hb, HCT, MCH, and MCHC were significantly higher after treatment compared to before one ($p < 0.05$). However, the independent t-test analysis did not show a significant difference in the mean values of WBC and RDW before and after treatment ($P > 0.05$). Additionally, the mean value of platelets was lower after treatment with a p-value of 0.047. **Conclusion.** Anemia was a common finding in the studied cases. Although the gluten-free diet improved celiac disease symptoms, anemia was persisted in a number of CD patients, even after a year of GFD treatment.

Keywords. Celiac disease, Anemia, Gluten Free Diet.

Vitamin D insufficiency and deficiency in chronic kidney diseases stage 5 patients on hemodialysis

Fatima Elhaji, Aisha Rhoma, Mariam Elahjal*

Department of Medical Laboratory Sciences, Faculty of Medical Technology, University of Tripoli, Libya

Email. momo3333663@gmail.com

ABSTRACT

Background and aims: Chronic kidney failure is one of the leading causes of death among Libyans in the city of Tripoli. About one billion people in the world suffer from vitamin D deficiency or insufficiency. Moreover, many data points indicate that vitamin D insufficiency and deficiency are highly prevalent among patients with chronic kidney disease (CKD) or undergoing dialysis. This study aimed to evaluate the level of vitamin D for dialysis patients at Tripoli dialysis and treatment center. **Methods:** Samples from 140 (patients and control groups) represented by 53 males (37.9%) and 87 females (62.1%) were included in the study. Samples from 104 dialysis patients and 36 healthy (control) group were included in this study. Data was collected during two months from the beginning of June 2023 to the end of July 2023 with the aid of a structured questionnaire (data collection form). One hundred and forty patients visiting Tripoli dialysis and treatment center were interviewed. Blood samples were collected from candidates; Clinical investigations data collected included vitamin D, urea, creatinine and PTH hormone levels measurement. The collected data was entered in Microsoft Excel and was analyzed in the Statistical Package for the Social Sciences (SPSS) version 27. **Results:** The current results of this study showed that the dialysis participants with insufficient level was (37%), followed by deficient level with (30%) while those with adequate and severe deficiency level were (28%) and (5%) respectively. The result of independent Sample (T) test that was performed to compare vitamin D level between dialysis patients and control group expressed as (M=25.03, SD= 11.10) and (M=21.06, SD=14.94) respectively; which revealed that there were no significant differences between them with P value =0.094. Furthermore, there was a weak negative correlation between serum vitamin D and creatinine ($r = -0.364$ -, $p=0.255$), between vitamin D and PTH ($r= -0.378$ -, $p=0.226$), and between vitamin D and urea ($r = -0.347$ -, $p=0.269$). **Conclusion:** Obviously, although vitamin D deficiency is strongly linked to kidney failure, the tests that work of this disease are limited, so introducing a vitamin D for dialysis patients with CKD helps in understanding the patient's condition and helps in disease management.

Keywords: Vitamin D vitamin D deficiency vitamin D insufficiency chronic kidney disease.

Evaluation of prognostic factors for hepatitis B virus infection

Marium Hussein^{1*}, Nagat Alkmishi², Khadija Ali³, Firuz Elaswad³

¹Department of Zoology, Faculty of Science, Omar El-Mokhtar University, Libya.

²Documentation, Information and Medical Statistics Department, RML-Tripoli, Libya

³Department of Immunology and Serology, Libya

Email. marium.hussein@omu.edu.ly

ABSTRACT

Background and aims. HBV infection leads to a wide spectrum of liver disease ranging from acute hepatitis (including fulminant hepatic failure) to chronic hepatitis, cirrhosis, and hepatocellular carcinoma (HCC). The diagnosis of HBV infection and its associated disease is based on a constellation of clinical, biochemical, histological, and serologic findings. A number of viral antigens and their respective antibodies can be detected in serum after infection with HBV, and proper test and interpretation of the results is essential for the correct diagnosis of the various clinical form of HBV infection. The aim of the present study was to know about various serological markers of HBV infection and understand the use of HBV markers in differentiating between various phases of HBV infection. **Methods.** Screening for HBV- Ag/ Ab was performed on 184 samples at the Reference medical Lab in Tripoli, between October and November 2021, also it was tested by a third-generation ELISA Test. The prevalence of 4 different markers of Hepatitis B virus infection was detected using Enzyme Linked Immunosorbent Assay (ELISA) Demographic factors were assessed during the study. Four Serology tests were explained the importance of interpreting the results. **Results.** The HBV was detected in 83(45.1), there HBsAg and its antibody (anti-HBs) were detected in 28 (33.7%) and 43(51.8%) of the reactive patient respectively. Anti-HBc IgM was found in 4(4.8%) while Hepatitis B envelope antigen (HBeAg) was detected in 8(9.7%), also 13(7.1%) was females of the ceases study, while male was 171(92.9%) of ceases. The study found 83 hepatitis B positive cases, with 71 from Libyan donors and 12 from foreign donors. ELISA tests revealed 28.9% male cases and 4.8% female cases, with no cases recorded for foreign females. No cases in foreign donors. **Conclusion.** The quantitative determination of HBsAg, HBsAb, and IgM anti-HBc could be a useful, simple tool for differentiating HBV phase. This study may help physicians differentiate between AHB and CHB in patients who are positive for IgM anti-HBc.

Keywords. Hepatitis B, ELISA, HBsAg, HBsAb, HBc-IgM, HBe Ag.

Molecular modelling and design Bcl-2 inhibitor for cancer therapy

Alaa Aldurrat^{1*}, Ismail Alkiskas¹, Ismail Taban²

¹Faculty of Pharmacy, Misurata University, Libya

²Biotechnology Research Center- Misurata, Libya

Email. alaaldurrat@gmail.com

ABSTRACT

The imbalance in apoptosis between the pro-apoptotic and anti-apoptotic is associated with many types of illness including tumor growth; cancer cells may evade apoptosis by increasing or decreasing expression of antiapoptotic or proapoptotic. Moreover, overexpression of Bcl-2 a "pro-apoptotic protein", has been observed in acute myeloid leukaemia (AML) and chronic lymphocytic leukaemia (CLL), and many other types of cancer. Thus, targeting the Bcl-2 (pro-apoptotic) has showed significant clinical activity for the treatment of B-cell malignancies such as (AML) and (CLL). Venetoclax is the first Bcl-2 inhibitor approved by the food and drug administration (FDA), it's a small molecule inhibitor of Bcl-2 protein, an intracellular protein that inhibits apoptosis, which has shown impressive clinical activity against malignant cells through binding to the BH3-binding groove of BCL-2 and displaces Bim and other BH3-only proteins that are normally sequestered by the anti-apoptotic protein. However, venetoclax mono therapy has shown drug resistance and common adverse events associated with Venetoclax include neutropenia, thrombocytopenia, Anemia and other symptoms. Death and serious infections such as pneumonia and blood infection (sepsis) have happened during treatment by Venetoclax, the overall goal of this research project of design compounds with significant binding affinities for the protein and the development of BH3 mimetic compounds that has less adverse effects and more selective through virtual screening approaches. Furthermore, Modify the Lead compound (venetoclax) through the modification of chemical structure by various methods such as simplification, molecular replication, introduction of bulky groups, substitution with electron withdrawing, electron donating groups, and other methods. to explore the structure-activity relationship and studying the binding interaction between the modified compounds and the Bcl-2 by using docking, predict ADMET and Molecular dynamics simulations were performed to ensure the stability of the modified compounds. The docking results were confirmed according to estimate RMSD, visualization the active site interaction and docking energy. The RMSD which was between (1.43Å, 1.97Å) and docking energy found around between (-6.8944, -10.97 Kcal/mol).

Keywords. Bcl-2, Venetoclax and Inhibitors.

Allele polymorphism of serotonin transport gene in normal and autism children in Misurata city

Marrwa El Wash*, Asma Alish, Fauzia El-Garabulli

Department of Genetic and Biotechnology, Misurata University, Misurata, Libya

Email. marwasa246@gmail.com

ABSTRACT

Serotonin (5-HT) act as monoamine neurotransmitter in central and peripheral nerve system. Its level in brain is controlled by SERT protein that localized on the axon terminal and soma of the serotonergic neurons and control its reuptake process. SERT remove 5-HT from the synapse via active recycling process which controls the extend and duration of 5-HT activity. The promoter of serotonin transporter (SERT) gene is polymorphic and represented by alleles, long(L) and short(S) allele and three genotype (LL, SL, SS). Serotonin modulate multiple activities and behaviors present in both normal and several pathological conditions such as mood, perception, aggression, appetite and anxiety. Its role in psychiatry particularly in depression and autism were investigated by many researchers. Heterogeneity and severity phenotypic criteria are result of different involved allele. In this study allele polymorphism of serotonin in children in Misurata city and role of serotonin in autism was investigated. The data showed a continuous autistic symptom and heterogenous phenotype in both collected samples indicate allele polymorphism of serotonin transport gene promoter region (5-HTTLPR). The data shows also linkage of this region of the transporter promoter with specific behavior that represent genotype SS, SL, LL in normal and autism person. The rate of S allele transmission was higher than L allele transmission in Misurata collected samples.

Keywords. Serotonin, Autism, Allele Polymorphism, Allele Transmission Rate.

***In silico* studying Hsp90 as a potential target for the identification of new anticancer candidate**

Ismail Taban

Biotechnology Research Center, Misurata, Libya

Email. Taban2010@yahoo.com

ABSTRACT

Cancer refers to an abnormal proliferation of cells, this being caused by multiple changes in gene expression, with the ability to invade neighboring tissues, thereby leading to death of the host. A better understanding of the pathological mechanism of cancer will assist in developing new antitumor therapeutic agents to reduce the disease burden. Heat shock protein (Hsp90) is a molecular chaperone in the family of heat shock proteins with the molecular weight of 90 k, required for the stress-survival response, protein refolding, and the conformational maturation of a variety of signaling proteins. Hsp90 has been shown to be effective targets for tumor treatments, as they are involved in various pathologies and oncogenic processes in humans, making it important to gain insights into their interactions with inhibitors. There are around eighteen Hsp90 inhibitors that have been entered into clinical trials. Geldanamycin, was shown to bind to the N-terminal nucleotide pocket of Hsp90, leading to inhibition of the activity of Hsp90. Despite promising *in vitro* and *in vivo* efficacy, geldanamycin failed to reach any clinical trial owing to its poor solubility and hepatotoxicity. Unfortunately, no Hsp90 inhibitors have been approved by FDA. One of the main problems in Hsp90 inhibitors discovery are late-stage drug failure, which is mainly due to absorption, distribution, metabolism, excretion and toxicity (ADME/Tox). Therefore, *in silico* study was introduced to help minimize drug failure problems, and accelerates the drug discovery process. The aim of this project is to design inhibitors of Hsp90, which could show to be effective targets for cancer treatments. It is important to know how this molecule interacts with its site of action, more specifically its conformational properties and orientation for the interaction. This study seeks to identify such interactions between designed inhibitors and Hsp90, typically through their study the binding interaction in three-dimensional (3D) structure. The study investigated the modification and development of Lead, specifically through modification to explore the structure-activity relationship. Using *in silico* techniques (molecular docking, Expassy ADME and molecular modeling) As result, all the compounds reached the active site through the tunnel and were exposed to multiple hydrophobic residues during using MOE software. Compound 1 formed hydrogen bonds between the two hydroxy groups of the compound1 with Asp43 and exposed to multiple hydrophobic residues (Glu,36 Asn,40 Ala,44 Lys,47 Ile,85 Met,87 Asn,95 Leu,96 Gly,125 Val,126 Gly,127 and Tyr,129). An additional was found to superimpose exactly on the ligand, with the value of RMSD equal to 1.16 and binding energy -5.59 Kcal/mol. The examined compounds showed promising drug-likeness grads and good physicochemical properties according to Lipinski's rule of five.

Keywords. Hsp90, Cancer, Inhibitor.

The role of Mmpl11 protein in biofilm formation and its impact on tuberculosis

Elhassan DN, Maiteeg NA

*Department of Biomedical Sciences, Faculty of Pharmacy, Misurata University Libya
Email. Dania.nuri86@gmail.com*

ABSTRACT

This study aims to investigate the role of Mmpl11 protein in biofilm formation and its effect on tuberculosis. Mycobacterium tuberculosis contains a number of transport proteins, the most important of which is MmpLs, which belong to the RND superfamily. MmpLs play an important role in Mtb virulence. As it transfers the virulence lipids to the surface of the bacterial cell to produce the expected effect. This study focuses on MmpL11 proteins, as this protein plays an important role in biofilm formation and transport of lipid-containing mycolic acid. By understanding the structural and functional relationship of this protein, new drugs that target it can be developed. The MmpL11 mutation had altered biofilm formation to the wild type. TLC analysis of surface lipids was also performed using pentane, and the results showed the presence of impurity lipid species in the MmpL11 mutant, indicating that MmpL11 involves lipid transport and has an important role in biofilm formation. Thus, it will contribute effectively to the production of medicines to treat tuberculosis.

Keywords. Mmpl11 Protein, Tuberculosis, Biofilm Formation.