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ABSTRACT BOOK



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Table of Contents

THE JOINTS MANIFESTATIONS OF INFLAMMATORY BOWEL DISEASES.....	1
"GENERAL SURGERY" AND "SURGERY": TEXTBOOKS FOR TRAINING FOREIGN MEDICAL STUDENTS	2
EFFECTS OF UNCOMPLICATED PHACOEMULSIFICATION SURGERY ON THE FUNCTIONS OF UPPER EYELID ELEVATORS.....	3
SUSCEPTIBILITY TO DISCOLORATION OF DENTAL RESTORATIVE MATERIALS CONTAINING DIMETHACRYLATE RESIN AFTER BLEACHING.....	4
CONGENITAL CATARACT	5
THE RELATIONSHIP BETWEEN PROFESSIONAL BELONGING AND QUALITY OF LIFE IN MIDWIVES.....	6
CULTURAL COMPETENCE AND CULTURAL INTELLIGENCE OF HEALTHCARE PROFESSIONALS PROVIDING EMERGENCY MEDICAL SERVICES	7
STRESS-RELATED FACTORS IN CLINICAL PRACTICE FOR POLISH BACCALAUREATE NURSING STUDENTS – CROSS – SECTIONAL STUDY.....	8
RIBOSOMAL PROTEINS AND CANCER	9
HOW RELIABLE IS THE INFORMATION ON THE INTERNET ABOUT SCOLIOSIS?	10
GIANT GANGLION CYST ORIGINATING FROM THE FIRST METATARSOPHALANGEAL JOINT: A CASE REPORT	11
MULTIFACTORIAL EFFECT OF COVID 19 IN CANCER PATIENTS.....	12
PREPARATION AND IN VITRO EVALUATION OF DAIDZEIN-LOADED NANOPARTICULATE SYSTEMS.....	13
DO HOT SULFUR SPRINGS REALLY HAVE HEALING AND ANTIOXIDANT POWERS BOOSTER?	14
FACTORS CONTRIBUTING TO MEDICATION ERRORS IN PEDIATRIC UNITS OF JORDANIAN UNIVERSITY’S HOSPITALS: NURSE PERSPECTIVE.....	15
A STUDY ON POTENTIAL ANTIBACTERIAL ACTIVITY OF NEWLY SYNTHESIZED LANTHANIDE DERIVATIVES AND THEIR COMPLEXES WITH NALIDIXIC ACID AGAINST GRAM NEGATIVE AND GRAM POSITIVE BACTERIA.....	16
EVALUATION OF THE INHIBITION EFFECTIVENESS OF AMPICILLIN IN THE CORROSION STEEL IN ACID SOLUTION	17

DETERMINATION OF SOME BIOCHEMICAL PARAMETERS IN BLOOD IN A GROUP OF INDIVIDUALS WITH HYPERBILIRUBINEMIA AND HEPATITIS B	18
USING SERUM BIOMARKERS FOR THE EARLY DIAGNOSIS AND PREDICTION OF TYPE 1 DIABETES.....	19
ASSOCIATION OF XRCC2 GENE METHYLATION WITH BREAST CANCER.....	20
DNA METHYLATION OF MLH3 GENE IN HUMAN BREAST CANCER.....	21
CARDIOPROTECTIVE EFFECTS OF FUNCTIONALIZED NANOPARTICLES-DERIVED ROYAL JELLY TARGETING MOLECULAR AND CELLULAR SIGNALING INCARDIAC FIBROBLASTS22	
ARE MEDICAL STUDENTS AFEQUATELY TRAINED TO CARE FOR PATIENTS WITH AUTISM? A CROSS-SECTIONAL STUDY FROM PALESTINE	23
GLOBAL RESEARCH TRENDS ON THE LINKS BETWEEN THE GUT MICROBIOTA AND CANCER: A BIBLIOMETRIC ANALYSIS AND VISUALIZATION	24
MEASURING THE LEVEL OF SOME TRACE ELEMENTS IN THE SERUM AND PLACENTAE OF PREGNANT WOMEN INFECTED WITH TOXOPLASMOSIS.....	25
MEASUREMENTS THE LEVEL OF LIPID PEROXIDATION AND SOME ANTIOXIDANTS IN BLOOD SERUM OF THALASSEMIA’S PATIENTS.....	26
URINARY STONE IN OUTDOOR AND INDOOR WORKERS PATIENTS WITH FAMILY HISTORY	27
INVESTIGATION OF THE ROLE OF VITAMIN C IN ENHANCING THE ACTIVITY OF ANTIBACTERIAL AGENTS AND BIOFILM FORMATION	28
INHIBITION OF THE GROWTH OF STAPHYLOCOCCUS AUREUS USING SOME ANTIBIOTICS PRODUCED FROM BACILLUS SUBTILISINHIBITION OF THE GROWTH....	29

THE JOINTS MANIFESTATIONS OF INFLAMMATORY BOWEL DISEASES

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Joint manifestations of inflammatory bowel diseases (IBD) are observed in 30% of cases. Their largest share is in total forms of ulcerative colitis (UC) 85-90% and Crohn's disease (CD) involving the colon 30-35% or large and small intestines 60%. The pathogenesis of articular manifestations remains unclear. The importance of increased permeability of the intestinal wall, which is noted in patients with UC and CD, is discussed, as a result of which the components of the membrane wall of bacteria enter the bloodstream. These components act as peptide antigens that can lead to the development of arthritis. Contacting the molecules of histocompatibility complexes and further activating T-lymphocytes, peptides lead to joint inflammation. From the point of view of a rheumatologist, the articular manifestations of IBD are classified as seronegative spondyloarthropathies. During 2013-2020, we studied the frequency of treatment of patients with IBD with extraintestinal articular manifestations for examination to a rheumatologist. We analyzed the ratio of the number of patients with IBD having joints manifestations, which were confirmed and diagnosed by a rheumatologist or consulted in the areas of a gastroenterologist and a surgeon-proctologist. All patients who turned to a rheumatologist with joints manifestations over the years were referred by a gastroenterologist (38%), surgeon-proctologist (14%) and these extraintestinal manifestations of IBD were suspected and confirmed by a rheumatologist (48%). The need for a differentiated approach to the treatment of peripheral arthritis and any axial skeletal lesions is noted, the role of 5-aminosalicylic acid (5-ASA) drugs, steroidal and non-steroidal anti-inflammatory drugs (NSAIDs), immunosuppressant and biological drugs in the treatment of articular syndrome in IBD is evaluated. It is indicated that patients with IBD having of joints manifestations should be observed jointly by a rheumatologist, gastroenterologist and a proctologist.

Keywords: manifestations, inflammatory, bowel, diseases

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**"GENERAL SURGERY" AND "SURGERY": TEXTBOOKS FOR TRAINING FOREIGN
MEDICAL STUDENTS**

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The previously used textbooks on surgery has been described mainly the clinical manifestations of diseases and their treatment techniques, without clarifying the principles and preliminary diagnosis capabilities for students. The most important thing in education is the development of future doctor is method of preliminary diagnosis of any disease, including surgical. After medical education the doctors of the general medical practice tasks determinations basic requirements of scope of knowledge and practical skills for graduating student of institute of higher education of IV level of accreditation: goal-directed methodical algorithm of questioning of the patient (getting anamnesis), physical examination, substantiation of provisional diagnosis, determinate algorithm of additional methods of investigations with analysis of received results, differential diagnosis, forming clinical diagnosis, substantiation of treatment program and it's realization. In the future the young doctor can work not only the doctor of family medicine, but also the expert of other directions, for example – the surgeon. For preparation to practical workies application textbook “General Surgery” for students 2-3 years education and textbook “Surgery” for 4-6 years education English language foreign students and including information on methods and principles of forming of preliminary diagnosis, differential diagnosis, clinical diagnosis and treatment of surgical patients (Ed: Bereznytskyy, Zakharash, & Mishalov, Shidlovskyy, 2016, 2019).

Keywords: surgery, students, textbooks

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EFFECTS OF UNCOMPLICATED PHACOEMULSIFICATION SURGERY ON THE FUNCTIONS OF UPPER EYELID ELEVATORS

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We aimed to determine the effects of standard phacoemulsification and intraocular lens implantation (FACO+IOL) surgery on levator palpebrae superior function (LF) and Müller's muscle function (MF). Adult patients who were scheduled for standard FACO+IOL implantation surgery were included in this prospective, longitudinal study. Patients with ptosis at any level, using topical medication (phenylephrine, brimonidine, etc.) that may affect eyelid elevators' functions, who had intraoperative complications (pupillary block, posterior capsule tear, nucleus-lens drop, etc.) and did not attend at least one of postoperative controls were excluded from the study. Friedman's analysis of variance and Wilcoxon tests were used for repeated measures analysis and pairwise comparisons. Twenty-seven eyes of 25 patients were included in the study. Twelve (48%) patients were female, and 13 (52%) were male. The mean age was 66.67 ± 10.85 years (range 49-85 years). The mean duration of surgery was 18.30 ± 1.93 minutes (range 15-20 minutes). Ptosis did not develop in any patient's eye after surgery. The mean LF was measured as 13.95 ± 1.23 mm, 14.25 ± 0.92 mm, and 14.14 ± 0.95 mm before surgery, at the first week and month after surgery, respectively. When the mean LF was compared, no significant difference was found between the measurements ($p=0.602$). The mean MF was measured as 1.67 ± 0.48 mm, 1.25 ± 0.64 mm, and 1.23 ± 0.60 mm before surgery, at the first week and month after surgery, respectively. There was a significant difference in comparison to the mean MF ($p=0.02$). The mean MF significantly decreased in the first week and month compared to the preoperative period ($p=0.014$, $p=0.08$, respectively). However, no significant difference was found in the first week and the first month ($p=0.154$). Although there were no ptosis and significant change in LF after standard, uncomplicated FACO+IOL surgery, the mean MF was significantly decreased, and this decrease continued in the first month after surgery.

Keywords: levator palpebrae superior function, müller muscle function, ptosis, standard phacoemulsification surgery.

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SUSCEPTIBILITY TO DISCOLORATION OF DENTAL RESTORATIVE MATERIALS CONTAINING DIMETHACRYLATE RESIN AFTER BLEACHING

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The aim of this study is to compare the susceptibility of the materials to discoloration after bleaching of dental restorative materials containing dimethacrylate resin. In this study, resin modified glass ionomer, polyacid modified composite resin, giomer, posterior composite resin, anterior composite resin, bulk fill composite resin, flowable bulk fill composite resin, ormocer, indirect composite resin and hybrid ceramics were used as restorative material containing dimethacrylate resin. 20 samples were prepared from each material in accordance with the manufacturer's instructions. After the baseline colors are measured the samples were randomly divided into 4 subgroups as office bleaching, home bleaching and separate control group for each type bleaching method. Then, the samples were bleached and colored. After bleaching and colored, the color measurements of the samples were repeated. Data were analyzed using Paired-Samples T Test, two-way ANOVA and Tukey post-hoc tests. Statistical significance level was taken as $p<0.05$. In terms of bleaching systems, Opalescence Boost was found to cause more susceptibility to discoloration in materials ($p<0.05$). In terms of materials, it was found that the materials most sensitive to coloration were Clearfil Majesty Posterior, Filtek Bulk Fill Posterior Restorative, Filtek Bulk Fill Flowable and Fuji II LC, while the least sensitive materials were CAD/CAM materials ($p<0.05$). The bleaching process increases the susceptibility to coloration of materials containing dimethacrylate resin.

Keywords: discoloration, home bleaching, office bleaching, resin-based restorative materials

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CONGENITAL CATARACT

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Cataract is opacification of the lens of the eye that causes partial or total blindness. It is often a treatable cause of blindness in children. The most common congenital or childhood cataract is layered cataract. The causes of cataracts could be genetic background, infections (rubella, cytomegaly, smallpox, syphilis, toxoplasmosis, herpes, mumps), metabolic disorders or long-term treatment with glucocorticoids or adrenocorticotrophic hormones. The incidence of cataract in children ranges from 1 to 15 per 10,000. In developed countries, the incidence is 1 to 3 per 10,000. Symptoms of congenital cataracts in newborns and infants are very diverse, incl. photophobia, nystagmus, strabismus, leukocoria, delayed child development. Cataracts can be detected using a prenatal ultrasound scan performed between 18 and 20 weeks of pregnancy. Early detection of cataracts and rapid intervention are crucial in the prognosis and treatment, especially in newborns. The poster presents a case report of intrauterine ultrasonographic diagnosis of congenital cataract.

Keywords: congenital cataract; , ultrasonographic intrauterine diagnosis

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THE RELATIONSHIP BETWEEN PROFESSIONAL BELONGING AND QUALITY OF LIFE IN MIDWIVES

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Objective: The research was conducted to determine the relationship between professional belonging and quality of life in midwives. **Method:** The descriptive study was conducted in primary and secondary healthcare institutions in a province located in eastern Turkey. The research was conducted with 525 midwives between January 2020 and April 2021. The data of the study were collected with the personal introduction form, the midwifery belonging scale and the quality of life scale for the employees. In statistical analysis; number, percentage, mean and correlation analysis were used. **Results:** The average age of the midwives was 33.02 ± 7.51 , 76.6% of midwives are undergraduate, 62.4% of them are married, It was determined that 46.8% of them were equal to the expenses of their income levels. The mean total score of the midwives' belonging scale was determined as 75.99 ± 18.94 . Compassion satisfaction from the sub-dimensions of the midwives' quality of life scale; 28.91 ± 10.06 , compassion fatigue; 23.18 ± 9.55 , burnout; it was found that they had a mean score of 23.23 ± 5.89 . In addition, it was determined that there is a moderate positive correlation with professional satisfaction, which is one of the sub-dimensions of the quality of life scale, with the mean total score of midwifery belonging, and a low level of significant relationship in the negative direction with burnout. There was no relationship between midwifery belonging and empathy fatigue, which is the last sub-dimension of quality of life. **Conclusion:** In our study, it was determined that there is a significant relationship between midwifery belonging and professional satisfaction and burnout in midwives. It was concluded that midwifery belonging is an important concept in increasing professional satisfaction and reducing burnout in midwives. It is thought that the result of the research is important in terms of being a guide for studies on midwifery belonging.

Keywords: midwifery, professional belonging, quality of life

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CULTURAL COMPETENCE AND CULTURAL INTELLIGENCE OF HEALTHCARE PROFESSIONALS PROVIDING EMERGENCY MEDICAL SERVICES

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Abstract Background: There are more and more foreigners in Poland who become clients of the Polish health care system. They use, among others, emergency medical services provided by healthcare professionals: doctors, nurses, and paramedics. Skillful care for culturally different patients requires cultural competencies and cultural intelligence to ensure good quality of care and cultural safety. The study aimed to measure and assess the cultural competencies and cultural intelligence of medical professionals working in Hospital Emergency Departments (HEDs) and Hospital Emergency Rooms (HERs) in Małopolska, a region in Southern Poland. **Methods:** The following questionnaires were used in the study: the Cross-Cultural Competence Inventory (CCCI), the Cultural Intelligence Scale (CQS), and Questionnaire on attitudes towards culturally different people. 709 medical professionals participated in the study, including 363 nurses, 223 paramedics, and 123 doctors. **Results:** Cultural intelligence – the overall score and the scores on the metacognitive, cognitive, motivational, and behavioral subscales were significantly higher among HED and HER doctors. Cultural competencies – the overall score and the score on the cultural adaptation subscale were also significantly higher among HED and HER doctors. The CCCI and CQS scores were influenced by selected variables: taking care of and close interactions with representatives of other cultural circles; staying outside Poland for more than a month. Doctors were the group of medical professionals that were most tolerant and most positive towards people from other cultures. **Conclusions:** The research results confirm the positive impact of contact of medical professionals with people from other cultures on their cultural competences and cultural intelligence. They indicate the need for training in acquiring cultural competences and developing cultural intelligence, especially among nurses. They demonstrate the need to raise awareness among HED and HER medical professionals about issues in intercultural care and to increase diversity efforts, especially among nurses.

Keywords: healthcare providers/healthcare professionals, emergency medical system, cultural competence, cultural intelligence

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**STRESS-RELATED FACTORS IN CLINICAL PRACTICE FOR POLISH BACCALAUREATE
NURSING STUDENTS – CROSS – SECTIONAL STUDY**

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Abstract: The aim of clinical education is to provide nursing students with skills and knowledge to practice the profession, and to ensure the quality of care and patient's safety. Students are faced with situations that may be a new experience causing stress and difficulties. The purpose of the study was verification of stressors and reasons for not coping with difficulties. It was a cross-sectional study. The research tools used were: the Generalized Self-Efficiency Scale and the authors original questionnaire. The study involved 307 undergraduate nursing students at the Jagiellonian University Medical College. Among the difficulties faced by the students were related to: contact with the patient and their family, the performance of care treatments, and the performance of diagnostic and therapeutic procedures. The most common reason for not being able to cope with difficult situations was the lack of experience, insufficiently trained procedure skills, and insufficient knowledge. Older students mentioned insufficient knowledge and excessive overload with duties as the reasons for not coping with difficulties. The lower the sense of self-efficacy of students was, the more often they indicated the lack of patience in contact with the patient as the reason for not coping with difficulties.

Keywords: nursing; self-efficacy; stressors; patient; clinical learning

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RIBOSOMAL PROTEINS AND CANCER

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The translation process consists of translation factors and ribosomes. Ribosomal components include ribosomal proteins (RP) and ribosomal RNA. Many RPs are involved in assembling ribosomal particles and or stabilizing important regions of rRNA. Besides their conventional roles, RPs have been reported to exhibit secondary functions that have not yet been fully characterized in other cellular processes such as DNA repair, apoptosis, drug resistance, proliferation, and growth inhibition. Since cancer cells require a large amount of protein, they need ribosomes that work much more efficiently than normal cells. Several tumor suppressors and oncogenic proteins control the progression of cancer cells by regulating ribosome biogenesis and protein synthesis. Interestingly, free RPs also have various roles in tumorigenesis or suppression. The physiological link between RPs and cancers has been extensively reviewed and elucidated on several pathways, including their interaction with the p53-MDM2 complex. The first evidence of an association between RPs and cancer came from observing the haploinsufficiency of eS4 in Turner Syndrome and eS19 mutation in Diamond-Blackfan Anemia. In the following years, the roles of different RPs in various cancer types such as colorectal cancer, breast cancer, lung adenocarcinoma, T-cell acute lymphoblastic leukemia, prostate cancer, breast cancer, gastric carcinomas, ovarian cancer, and liver cancer have been the subject of research. Apart from their effects on carcinogenesis, it was also emphasized that RPs could be evaluated as predictive biomarkers for early diagnosis, prognosis, and treatment for some cancer types. In addition, some studies have been conducted on the use of these proteins in cancer treatment. The identification of novel extra-ribosomal functions of some RPs has identified these proteins as a new class of oncogenic or tumor suppressor factors. Suppression and stimulation of the expression of these novel oncogenic and tumor suppressor proteins, respectively, open up new therapeutic strategies in cancer therapy.

Keywords: ribosomal proteins, carcinogenesis, cancer biomarkers, cancer treatment

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HOW RELIABLE IS THE INFORMATION ON THE INTERNET ABOUT SCOLIOSIS?

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Aim: The internet is an information source which is used widely by patients. Scoliosis is a common problem among people and it is important to reach the right and reliable information about it. In our study; we aim research the reliability and quality of the information which is written on the internet based sites. **Method:** We used <http://www.google.com.tr> to collect data for our study. The Turkish word “skolyoz” is written on search bar and video links and duplicated and sponsored cites are excluded. First 50 websites are included in the study. These sites categorized according to their sources: hospital, doctor, media, blogs and anonymous. The readability of these Turkish texts was evaluated by Flesch Reading Ease Score (FRES) and Atesman readability formulas. DISCERN score and Journal of the American Medical Association (JAMA) benchmark criteria were performed to detect the reliability of these texts. **Results:** 669000 results found in total searches. First 50 websites totally. The FRES score was 68.5 (easily understood) and Atesman readability score was 76.5 (easy). JAMA score was 1.96 and DISCERN score was 38.56. There were 24 sites linked to hospitals, 13 sites linked to Doctors, 9 sites linked to media, 3 blog sites and 1 anonymous. Although the majority of websites (76%) could define scoliosis in acceptable values, there were a few sites which included efficient information about scoliosis (48%). **Conclusion:** The internet becomes the fastest information tool for patients and doctors with its increasing utilization. The content of the information on the internet about scoliosis was mostly inadequate and incorrect. This situation might lead discordance between patients and doctor. We believe that the websites which provide information about scoliosis must be controlled to give exact information and the patients should be encouraged to use these sources.

Keywords: scoliosis, internet, google

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GIANT GANGLION CYST ORIGINATING FROM THE FIRST METATARSOPHALANGEAL JOINT: A CASE REPORT

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Introduction: Ganglion cysts are benign connective tissue lesions that develop with mucinous degeneration of the connective tissue of the joint capsule. These tumoral lesions usually develop around the hand and wrist. There have been reported ganglion cysts in foot and ankle, and these are usually on the dorsal aspect of the foot. In our case; We aimed to present a giant ganglion cyst originating from the first metatarsophalangeal (MTP) joint of the foot. **Case report:** A 59-year-old female patient was consulted to our service with the complaints of swelling and pain in the medial aspect of the left and paresthesia in the dorsomedial region of the foot 1. In our clinical examination, a large palpable swelling measuring approximately 2x3 cm was observed and pain was observed to increase with palpation. Ultrasonography of the patient was evaluated as compatible with ganglion cyst. The ganglion cyst was surgically excised. At the post-operative 6th week, all complaints of the patient, including paresthesia, were relieved. No recurrence was observed at the 24th month after the follow-up. **Discussion:** 2-17% of all ganglion cysts are observed in the foot, and 70-80% of them are located on the dorsal aspect of the foot. First MTF ganglion cysts are extremely rare. Although, the diagnosis of ganglion cysts is generally made clinically, size and anatomical localization of the cyst can be determined more precisely by ultrasonography and magnetic resonance imaging (MRI) methods. Recurrence was reported with a rate of 7% after the excision of the cysts on the foot. Therefore, it is recommended to completely excise the cyst with its pedicle. **Conclusion:** Ganglion cysts of the foot are rare and reported cases in the first toe MTP joint are rare. We presented a case originating from the first MTP joint of the foot, which was treated surgically.

Keywords: giant ganglion cyst, first metatarsophalangeal joint, surgical excision

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MULTIFACTORIAL EFFECT OF COVID 19 IN CANCER PATIENTS

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The new coronavirus pandemic has spread rapidly globally and has been identified as an emergency that implies international concern. The World Health Organization declared the condition a pandemic, which began in December 2019 in Wuhan, China. This zoonotic coronavirus has prompted many scientists to study it in order to accurately define the mechanisms of infectivity and the rate of human-to-human transmission. Covid 19 is a deadly virus, manifesting in atypical pneumonia and resulting in a variety of unusual survival outcomes. Cancer patients may be immunocompromised due to the underlying malignancy and are considered to be twice as likely to be infected with Covid 19. Malignant pathology is complex and results in multisystem symptomatology. Hence the challenge of considering the multifactorial impact of coronavirus in cancer patients, causing consequences for their psychological, social, emotional, and cognitive status, as well as a different allocation of resources and a new approach to monitoring them.

Keywords: covid 19, pandemic, virus, cancer

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PREPARATION AND IN VITRO EVALUATION OF DAIDZEIN-LOADED NANOPARTICULATE SYSTEMS

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Daidzein is a water-insoluble phytoestrogenic isoflavone of the Leguminosae family, mainly found in soy and soy-derived foods. Daidzein has a broad spectrum of physiological and pharmacological functions. It has anti-cancer, anti-inflammatory, antioxidant, enzyme inhibitor properties and causes a decrease in low-density lipoprotein levels. Glioblastoma Multiforme (GBM) is the most common, rapidly progressing, and fatal primary brain tumor. It accounts for more than 51% of all gliomas. For this reason, much scientific research is being done to treat brain tumors. This study aims to prepare daidzein-loaded PLGA and PLGA-Gelucire® 44/14 nanoparticles for the treatment of GBM and to evaluate their characteristics, neurotoxicity, and cytotoxicity in vitro. The PLGA and PLGA-Gelucire® 44/14 nanoparticles were prepared by using the non-modified and modified emulsion-solvent diffusion method. The surface morphology, particle size, zeta potential (ZP), encapsulation efficiency (EE) and in vitro release characteristics of nanoparticles were investigated. Furthermore, FT-IR, DSC and SEM were used to characterize these systems. The neurotoxicity on neurons and cytotoxicity against the U-87 MG cell line of the chosen optimum nanoparticle formulations were evaluated. The mean particle size and ZP values of all prepared nanoparticles were a range of 198.52 ± 7.04 - 672.78 ± 70.95 nm ($p \geq 0.05$) and -14.70 ± 0.36 - -0.50 ± 0.34 mV ($p \geq 0.05$), respectively. SEM images of nanoparticles revealed their approximately spherical shape. The EE % values of nanoparticles were a range of % 35.79 ± 3.43 - 84.85 ± 2.20 ($p \geq 0.05$). The cumulative daidzein release from daidzein-loaded nanoparticle formulations was up to about 100 % at 19-37 days of release. It was found that the prepared nanoparticulate systems reduced the neurotoxic effects of daidzein and showed similar cytotoxic effects to those of daidzein ($p > 0.05$). The prepared nanoparticles are useful and promising systems for sustained release of daidzein, reduction of the neurotoxic effects of daidzein at high doses (200 μ M and 300 μ M) and maintaining of its cytotoxic activity against cancer cells.

Keywords: cytotoxicity, daidzein, gelucire® 44/14, neurotoxicity, plga, u-87 mg

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DO HOT SULFUR SPRINGS REALLY HAVE HEALING AND ANTIOXIDANT POWERS BOOSTER?

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The beneficial effects of sulfurous springs have been attributed to the presence of sulfurous compounds, and many other minerals but mainly hydrogen sulfide (H₂S). The purpose of our study was to explore the effects of long-term exposure to sulfurous springs on oxidative stress and antioxidant responses in individuals who lived nearby the sulfurous springs. The study was conducted in the Northern part of the Jordan Rift Valley and host many sulfurous springs. The and oxidative stress index in sulfurous spring residents were lower than control individuals. The total antioxidant capacity and total NO_x, and H₂S levels were higher in sulfurous spring residents compared to control group. Furthermore, we have highlighted that living nearby the sulfurous springs does not affect oxygen saturation levels or heart pulse rate. These findings suggest that exposure to sulfurous springs boost the antioxidant capacity and reduce oxidative stress levels in the human body. Hence, visiting sulfurous springs can act as natural remedies to diminish oxidative stress as they show promising potential in several-oxidative stress-related diseases treatment.

Keywords: antioxidant, h₂s, sulfur spings, oxidative stress

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FACTORS CONTRIBUTING TO MEDICATION ERRORS IN PEDIATRIC UNITS OF JORDANIAN UNIVERSITY'S HOSPITALS: NURSE PERSPECTIVE

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Background: medication error is a crucial issue in health care. Until nowadays, many studies make every effort to define medication error and to explore factors causes it. Purpose: this study was intended to examine factors that causes medication errors in pediatric units of Jordanian university's hospitals. Method: a quantitative, cross sectional, descriptive-correlation design, using self-reporting questionnaires, which recognize types, stages, causes to medication errors, also errors during drug delivery process. Results: Of the 150 distributed questionnaires to registered nurses, 101 (67%) responses were analyzed. 52 % of nurses perceptions indicated that the most recurrent types of medication error occurs are wrong dosage and 12% due to the wrong patient. Due to error responsibility, the first responsible person for medication error is the physician (58.3%) followed by nurse (36%), then pharmacist(5.8%). Causes of error, (56%) for Heavy workload and (15%) for Insufficient Training. Errors during drug delivery process, (28%) voted for labeling error and (20%) for omit key information. Conclusion: factors contributing to medication error are ranked as nurses perceived. Strategies to reduce or eliminate medication errors can be maintained. Recommendations: since medication error is a many-sided practice matter, more instruments should be used such as interviews with medical experts. Classifications of factors causes medication error are not clearly defined, a more studies' follow up is needed. Data analysis: Descriptive statistics are applied to analyze the data.

Keywords: medication error, medication administration error, nurses, patient safety, drug administration, transcription.

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**A STUDY ON POTENTIAL ANTIBACTERIAL ACTIVITY OF NEWLY SYNTHESIZED
LANTHANIDE DERIVATIVES AND THEIR COMPLEXES WITH NALIDIXIC ACID AGAINST
GRAM NEGATIVE AND GRAM POSITIVE BACTERIA**

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Purpose: This study was performed to establish the antibacterial activity of lanthanide derivatives and their complexes with nalidixic acid. **Methods:** The antibacterial activity was investigated using micro-broth dilution techniques to establish the minimum inhibitory concentration for each compound investigated. **Results:** Lanthanide derivatives and their complexes with nalidixic acid and its complexes were found to exhibit antibacterial activities against *Escherichia coli* with MICs ranging between 4-256 µg/mL. Although *Staphylococcus aureus* and MRSA were resistant to nalidixic acid alone they were susceptible to some lanthanide derivatives and their complexes with nalidixic acid with MICs ranging between 4-132 µg/mL and 4-256 µg/mL respectively. However, lanthanide derivatives and their complexes with nalidixic acid and its complexes showed no activity against *Salmonella enterica*, *Klebsiella pneumoniae*. **Conclusions:** It was clear that lanthanide derivatives and their complexes with nalidixic acid could be a potential antibacterials against *Escherichia coli* and showed a promising improvement against Gram positive bacteria. Further study should test the toxicity of lanthanide derivatives and their complexes with nalidixic acid.

Keywords: nalidixic acid, medicinal chemistry, antimicrobial, bacteria

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EVALUATION OF THE INHIBITION EFFECTIVENESS OF AMPICILLIN IN THE CORROSION STEEL IN ACID SOLUTION

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The increasing number of applications for carbon steel not only in industry and everyday life, but especially in medical applications requires knowledge on its susceptibility towards electrochemical corrosion in different environments, especially in acidic and neutral environments, including the human body. Moreover, the interest of the research community is still focused on finding suitable compounds which provide good inhibition effectiveness in the specific corrosion environment, are affordable and are considered environmental friendly. Ampicillin is a common β -lactam antibiotic of the penicillin family used to treat bacterial infections. In this work we discuss the inhibition effectiveness of ampicillin as corrosion inhibitor for carbon steel in acidic solution at room temperature, using the weight loss method, at different concentrations of ampicillin. The inhibition effectiveness of ampicillin in 0.02 M HCl solution increased with increasing its concentration. Indeed, the highest inhibition effectiveness (90.7%) was achieved for the highest inhibitor concentration (1.0 wt.% ampicillin).

Keywords: corrosion, carbon steel, ampiciline, acid solution, weight loss

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DETERMINATION OF SOME BIOCHEMICAL PARAMETERS IN BLOOD IN A GROUP OF INDIVIDUALS WITH HYPERBILIRUBINEMIA AND HEPATITIS B

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Hyperbilirubinemia is a condition that can be a result of liver damage or liver malfunctioning, and linked to specific disorders or diseases. Bilirubin and some other biochemical parameters are used to test the health conditions in a group of individuals, suspected for hepatitis B. Total bilirubin, indirect and direct bilirubin, ALT and AST were observed and monitored in two different randomly chosen groups. In the first group, were involved all the healthy individuals and in the second one, were included hepatitis B positive individuals. The purpose of this study was to determine and compare these biochemical parameters between the groups separately, and to further understand the biochemical profile of hepatitis B hyperbilirubinemia. Data analysis clearly show that men are more likely to have higher levels of Total Bilirubin. It turned out that the most affected age group by Hepatitis B is the one from 18 to 30 years old. A good reason for the achieved results can be the lifestyle of these individuals, alcohol consumption as well as higher sexual activity in this age group. There is no significant difference between the two groups when comparing the levels of Indirect Bilirubin and Direct Bilirubin/Indirect Bilirubin ratio. There is a strong positive correlation between ALT and AST ($r= 0.985$; $p= 0.00$), which is linked to the stage of the liver cells damage. When analyzing the relationship between the ALT/AST ratio against total Bilirubin, it results that they are not directly related to each other, so, it is important and necessary to measure separately and take into consideration separately Direct and Indirect Bilirubin value. This results to be a very important information when drawing a conclusion about the problem and make the differentiation, because the information we get from the levels of total bilirubin is not always enough.

Keywords: hyperbilirubinemia, total bilirubin, conjugated hyperbilirubinemia, unconjugated hyperbilirubinemia, alt, ast

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USING SERUM BIOMARKERS FOR THE EARLY DIAGNOSIS AND PREDICTION OF TYPE 1 DIABETES

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Diabetes mellitus type 1 is an autoimmune disease where the pancreas fails to insulin production. This is a chronic disorder observed mainly in young ages and is caused by an autoimmune response against pancreatic β cells, leading to reduced levels or lack of insulin in circulation. There are different factors, such as genetic, epigenetic, immunologic and environmental factors, leading to the development of type 1 diabetes. Clinical similarity to type 2 diabetes and the lack of clinical symptoms at the beginning of the disease, makes its diagnosis more difficult and this is one of the main reasons leading to late diagnosis of the disease. Monitoring specific parameters like C-peptide, HbA1c, fasting glucose and autoantibodies is of great importance in prediction and evaluation of individuals predisposed to develop diabetes mellitus type 1. Based on the importance of these autoimmune markers for type 1 diabetes, the aim of our work, was to study the laboratory parameters related to the early diagnosis of type 1 diabetes as well as to evaluate the relationship between these parameters in a group of individuals diagnosed with type 1 diabetes. After blood tests and data analysis, the results showed that the increase of positive autoantibodies affects the reduction of C-peptide levels, which means that pancreatic β cells have begun to lose their functionality, as a result of cell death which comes after the autoimmune attack. Based on these results we can say that low C-peptide levels and high blood glucose are an indicator of type 1 diabetes. A significant correlation between C-peptide level and age, as well as between high glycaemic level and high triglycerides is present. High levels of urea and electrolyte imbalance is observed. Taking into consideration these facts, clinical testing for the presence of specific serum biomarkers, helps in the early detection of the disease.

Keywords: diabetes mellitus 1, serum biomarkers, c-peptide, anti ab

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ASSOCIATION OF XRCC2 GENE METHYLATION WITH BREAST CANCER

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XRCC2 gene encodes a member of the RecA/Rad51-related protein family that participates in homologous recombination to maintain chromosome stability and repair DNA damage. This gene is involved in the repair of DNA double-strand breaks by homologous recombination and it functionally complements Chinese hamster *irs1*, a repair-deficient mutant that exhibits hypersensitivity to a number of different DNA-damaging agents. In this study, evaluated the DNA methylation of XRCC2 gene in human breast cancer in the context of pathophysiological and prognostic significance. Forty five pairs breast cancer tissues and their corresponding non-cancerous breast tissues that were grouped according to the type of breast cancer and clinical information of patients. The methylation status of XRCC2 gene was evaluated by methylation-specific polymerase chain reaction (MSP) or digestion of genomic DNA with a methylation-sensitive restriction enzyme and PCR with gene-specific primers (MSRE-PCR). The overall methylation rates in tumor tissue of XRCC2 gene was 9%, there was no evidence of XRCC2 promoter methylation. In order to confirm the relationship between the breast tumor and methylation of XRCC2 gene, further analysis like protein expression and epigenetic analysis is needed.

Keywords: breast cancer, *xrcc2*, methylation

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DNA METHYLATION OF MLH3 GENE IN HUMAN BREAST CANCER

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MLH3 is a member of the MutL-homolog (MLH) family of DNA mismatch repair (MMR) genes. MLH genes are implicated in maintaining genomic integrity during DNA replication and after meiotic recombination. The protein encoded by this gene functions as a heterodimer with other family members. Defect in this gene frequently occur in tumors exhibiting microsatellite instability. This study investigated the DNA methylation of selected DNA repair gene MLH3 in human breast cancer in the context of pathophysiological and prognostic significance. Forty pairs breast cancer tissues and their corresponding non-cancerous breast tissues that were grouped according to the types of breast cancer and clinical features of patients were analyzed by methylation-specific polymerase chain reaction (MSP) or digestion of genomic DNA with a methylation-sensitive restriction enzyme and PCR with gene-specific primers (MSRE-PCR). The overall methylation rates in tumor tissue were 3% for MLH3 gene, there was no evidence of MLH3 promoter methylation. In order to confirm the relationship between the breast tumor and methylation of MLH3 gene, further analysis like immunohistochemistry and epigenetic techniques is necessary.

Keywords: breast cancer, mlh3, methylation

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**CARDIOPROTECTIVE EFFECTS OF FUNCTIONALIZED NANOPARTICLES-DERIVED
ROYAL JELLY TARGETING MOLECULAR AND CELLULAR SIGNALING IN CARDIAC
FIBROBLASTS**

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Royal jelly (RJ) is a widely ingested honeybee product that has numerous activities including wound-healing, anti-bacterial, anti-allergic, and anti-tumor as well as augmenting collagen production. This study was carried out to investigate the effect of nanoparticles-derived RJ on fibrotic signaling in cardiac fibroblasts. Nanoparticles-derived RJ was produced by using an ultrasound sonication technique. Isolated cardiac fibroblasts from neonatal rats were cultured and treated with different concentrations of sonicated (S) or non-sonicated (NS)-RJ (0.0, 50, 100, 150, 200, and 250 µg/well). Results revealed that S-RJ decreased the mRNA abundance of transglutaminase 2 (TG2) and had a strong significant correlation with TG2 mRNA abundance. Moreover, NS-RJ or S-RJ altered the mRNA abundance of some profibrotic, apoptotic, and proliferation markers. The S-RJ augmented the strength and significance of the correlation with mRNA levels of profibrotic (COL1A1, COL3A1, FN1, α -SMA, CTGF, TGF- β 1, MMP-2, and CX43) and proliferation (CCND1) markers. NS-RJ or S-RJ reduced collagen cross-linking along with an increase in contents of soluble collagen. We conclude that TG1 and TG2 had avital extra- and intra- cellular functions in cardiac fibroblasts via different mechanisms. Declining TG2 expression upon treatment of cultured cardiac fibroblasts with S-RJ or NS-RJ may have further potential roles in interpreting their protective mechanisms in cardiac fibrosis.

Keywords: collagen cross-linking, fibroblasts , biomarkers, royal jelly, collagen, sonicated

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ARE MEDICAL STUDENTS ADEQUATELY TRAINED TO CARE FOR PATIENTS WITH AUTISM? A CROSS-SECTIONAL STUDY FROM PALESTINE

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Objective: The present study was undertaken to assess familiarity, knowledge, confidence, of medical students with regard to autism spectrum disorders (ASDs). **Methods:** This study was conducted in a cross-sectional design among medical students in the 3 main universities in Palestine. In addition to the sociodemographic and academic details, the questionnaire measured familiarity (8-items), knowledge (12-items), confidence and willingness to learn (5-items) with regard to ASDs. **Results:**The questionnaire was completed by 309 medical students (response rate = 77.3 %). The median familiarity, knowledge, and confidence scores were 50 % (42.5 %, 57.5 %), 50 % (41.7 %, 66.7 %), and 60.0 % (54.0 %, 68.0 %), respectively. There was a positive moderate correlation between familiarity and knowledge scores (Spearman's $\rho = 0.29$, p -value < 0.001) and familiarity and confidence scores (Spearman's $\rho = 0.34$, p -value < 0.001). Medical students who have received a course on autism were 3.08-fold (95 % C.I. of 1.78–5.31) more likely to score ≥ 50 % on the familiarity items compared to those who did not receive a course. **Conclusions** The present study identified considerable awareness and knowledge gaps among medical students with regard to ASDs. More studies are still needed to investigate if such interventions can improve healthcare services for individuals with ASDs.

Keywords: autism, knowledge, medical students, education, medical education, training

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GLOBAL RESEARCH TRENDS ON THE LINKS BETWEEN THE GUT MICROBIOTA AND CANCER: A BIBLIOMETRIC ANALYSIS AND VISUALIZATION

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Background: Significant links between the microbiota and human health have emerged over the last 20 years. A correlation has recently been demonstrated between changes in the gut microbiota and the development of cancer. This study aimed to use bibliometric analysis of published gut microbiota and cancer literature to present the research status and summarize the hotspots for frontier studies. Methods: A literature search for gut microbiota and cancer research from 2001 to 2020 was conducted using the Scopus database on March 20, 2021. The software VOSviewer (version 1.6.16) was used to conduct the visualization analysis. Results From 2001-2020, a total of 2061 publications were retrieved. Annual publication output grew from 10 in 2001 to 486 in 2020. The USA had the largest number of publications, making the largest contribution to the field (n=566, 27.46%). Before 2016, most studies focused on "effect of probiotics on cancer". The latest trends showed that "microbiota composition and gene expression" and "host-microbiome interaction in cancer immunotherapy" would be concerned more widely in the future. Conclusions: The research of "microbiota composition and gene expression" and "host-microbiome interaction in cancer immunotherapy" will continue to be the hotspot. Thus, this study provides the trend and characteristics of gut microbiota and cancer literature, which provided a useful bibliometric analysis for researchers to conduct further research.

Keywords: microbiota, cancer, bibliometric, scopus, vosviewer, visualization

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MEASURING THE LEVEL OF SOME TRACE ELEMENTS IN THE SERUM AND PLACENTAE OF PREGNANT WOMEN INFECTED WITH TOXOPLASMOVIS

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The current study deals with Toxoplasmosis and the relation of the parasite causing it (*Toxoplasma gondii*), its impact on the levels of trace elements in the serum and placentae of some pregnant women infected with compared to non infected who are considered a control group. Several trace elements, which included the Selenium (Se), Copper (Cu), Zinc (Zn), Ferrous (Fe), Magnesium (Mg) and Manganese (Mn) were measured, The study was conducted on a sample of (450) women, 225 of them were not infected with Toxoplasmosis and 225 were infected, 24 placenta of non infected women and 18 of infected women. Results showed that there was a significant increase in the levels of Se, Cu, Zn and Mg in the pregnant women serum who are infected with Toxoplasmosis, while there was an insignificant decrease in the level of Fe throughout the period of pregnancy for the in the serum of the infected pregnant women. The correlation between the infection and the period of pregnancy showed a significant increase in the levels of Se and Zn during the (3-6 months) period of pregnancy, a significant increase in the levels of Cu and Mg and insignificant increase in Mn level during the (6-9 months) period of pregnancy and on the other hand the level of Fe decreased. Moreover, results showed a significant increase in Se, Fe and Mg levels during the (6-9 months) period of pregnancy and insignificant increase in Cu level during the (6-9 months) period of pregnancy. The levels of Zn and Mn decreased during the pregnancy period in the placentas of the infected women.

Keywords: toxoplasmosis, serum, trace elements, antioxidants

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MEASUREMENTS THE LEVEL OF LIPID PEROXIDATION AND SOME ANTIOXIDANTS IN BLOOD SERUM OF THALASSEMIA'S PATIENTS

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Repeated blood transfusion in beta thalassemia patients may lead to peroxidative tissue injury by secondary iron overload. In the present study, (43) patients with beta thalassemia. We have evaluated hemoglobin (Hb), packed cell volume (PCV), red blood cells (RBC), white blood cells (WBC), iron (Fe), ferritin, uric acid, glutathion (GSH), malondialdehyde (MDA), Vitamins C and E and electrolytes as sodium (Na), potassium (K), and chloride (Cl). The findings were compared with (25) age matched healthy individuals were included in this study as a control group. A significant increase in the levels of WBC, Fe, ferritin, MDA and Vit C ($P < 0.001$), whereas significant decrease in the levels of Hb, PCV, RBC, GSH and Vit E ($P < 0.001$) was observed. Uric acid, Na and K were significant increase ($P < 0.05$) in the patients when compared with controls, while there was a non-significant increase in mean value of Cl. These results were suggest that oxidative stress and reduced antioxidant defense mechanism play an important role in pathogenesis of beta thalassemia major. We can conclude that defective membrane transport is responsible for observed changes of lipid peroxidation and some antioxidants. These results may help to understand the altered electrolyte homeostasis in thalassemia but there is still need of many future studies to clarify their mechanism of generation and pathological significance.

Keywords: antioxidant, beta thalassemia, hemoglobin, glutathion, malondialdehyde

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URINARY STONE IN OUTDOOR AND INDOOR WORKERS PATIENTS WITH FAMILY HISTORY

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A biochemical study of 365 patients with urinary stones disease according to occupation and family history, and the occupation divided to tow subgroups (outdoor workers (n=183) and indoor workers (n=182)) and evaluated laboratory test was done for each patients included phosphorus, calcium, uric acid, urea and creatinine in serum of patients and control group. The results showed a higher significant difference serum phosphorus, uric acid, urea and creatinine in patients outdoor workers compared with the patients indoor workers and control group at ($P=0.001$), and the higher significant difference more obvious in patients with family history, as a higher significant difference serum calcium in patients with family history outdoor workers compared with the patients indoor workers and control group at ($P\leq 0.05$). Finally, this study proved the strong relationship between occupation and urinary stones formation, the epidemiology of stones increase according to the type of occupation. In addition, the study proved that patients outdoor workers have incidence more than patients indoor workers, and increase with family history.

Keywords: urinary stone, family history, outdoor workers, indoor workers

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INVESTIGATION OF THE ROLE OF VITAMIN C IN ENHANCING THE ACTIVITY OF ANTIBACTERIAL AGENTS AND BIOFILM FORMATION

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Abstract The rapid development of antimicrobial resistance is an emerging health care issue in all countries. Furthermore, bacterial biofilms are three-dimensional structures containing bacterial cells enveloped in a protective polymeric matrix, which renders them highly resistant to antibiotics and the human immune system. New strategies for disrupting the formation of the EPS matrix can therefore lead to more efficient use of existing antimicrobials. Here we examined the mechanism of the known effect of vitamin C (sodium ascorbate) on enhancing the activity of various antibacterial agents. In the present investigation, the target isolates were obtained from University of Mosul/ Biology department/ bacterial culture collections, which evaluated quantitatively and qualitatively using standard techniques the isolates involved: *Staphylococcus aureus*, *Escherichia coli*, *Klebsiella sp.*, *Serratia marcescens* and *Pseudomonas aeruginosa*. Antibiotic susceptibility assays and biofilm forming assay results showed that most of the isolates were resistant to a wide range of antibiotics and possess a high capacity for biofilm formation using cover glass surface for the selected isolates. Vitamin C, an antioxidant, a scavenger of active metabolites. First, we determined the Minimum Inhibitory Concentration (MIC) of Vitamin C against selected isolates, and all further experiments used concentrations below the MIC. Our results showed that Vitamin C pretreatment enhances the bactericidal effect of antibiotic and increases bacterial susceptibility to antibiotics. Tests of sub inhibitory concentrations of Vitamin C showed good inhibition against selected isolates biofilm formation on cover glass surface using light microscopy. Evidence is presented that vitamin C could be used as an antibiotic adjuvant in combination with antibiotics and good inhibition of biofilm formation for the treatment of infections caused by multidrug-resistant bacteria.

Keywords: vitamin c, antibacterial agents , biofilm formation

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INHIBITION OF THE GROWTH OF STAPHYLOCOCCUS AUREUS USING SOME ANTIBIOTICS PRODUCED FROM BACILLUS SUBTILIS INHIBITION OF THE GROWTH

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Abstract *Bacillus subtilis* have the ability to produce many substances that are considered as means of their defense in addition to being tested and approved as antibiotics. The present study aimed to investigate the antibacterial effect of *Bacillus subtilis* crude bacteriocin on *Staphylococcus aureus*. The peptidic bacteriocin is considered of importance in industrial and medical field as an anticancer. Bacterial isolates were obtained from Bacterial Bank / Department of Biology / College of Science. Identification of the isolates were confirmed by microscopical and biochemical tests which include catalase, oxidase, IMViC, blood hemolysis, starch hydrolysis (for *Bacillus*) and growth on Mannitol Salt Agar(MSA), Voges-jenson agar(Vj)and Coagulase test (for *Staphylococcus*). Based on the capacity of bacteriocins to diffuse in agar, the reverse technique, which eliminated the contact between the producers and sensitive strains, was used to detect bacteriocin antibacterial action. Results clearly demonstrate the antibacterial effect of *Bacillus subtilis* bacteriocin by the inhibition of *Staphylococcus aureus* as compared to other indicator isolates.

Keywords: *bacillus.subtilis*, *staphylococcus.aureus*, bacitracin

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