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Abstracts

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RUCIC2025-01: Development and Psychometric Validation of an Oncology Antimicrobial Stewardship Knowledge and Practice Questionnaire for Pharmacists

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Abstract

Background: Infections in cancer patients undergoing immunosuppressive treatment highlight the critical need for effective antimicrobial stewardship (AMS). This study develops and validates a tool to assess pharmacists' knowledge and practices regarding AMS in oncology. There is a lack of validated instruments to measure oncology pharmacists' proficiency in AMS, essential for optimizing patient outcomes and minimizing antibiotic resistance. ***Objective***: The study aims to develop and validate the Oncology Care Antimicrobial Stewardship Knowledge and Practice Questionnaire (OC-AMS-KPQ) to measure pharmacists' AMS competencies in oncology settings. ***Methods***: Conducted in two phases: Phase I involved questionnaire development, item generation, content validity, and pilot testing. Phase II included questionnaire dissemination to hospital pharmacists and psychometric evaluations using Item Response Theory (IRT) for knowledge items, Exploratory Factor Analysis (EFA) for practice items, and Cronbach's alpha for reliability. ***Results***: The questionnaire comprises 112 items with acceptable psychometric evaluations. IRT analysis showed knowledge items within a suitable difficulty range (-3 to +3), and EFA confirmed adequate internal consistency with factor loadings >0.3. Cronbach's alpha indicated high reliability (0.899). ***Conclusions***: The OC-AMS-KPQ is a validated, reliable instrument for assessing pharmacists' AMS knowledge and practices in oncology care, supporting targeted educational interventions.

Keywords: Oncology antimicrobial, Pharmacists, Stewardship, Validation.

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RUCIC2025-02: Study of Some Cytokines in Untreated HCV-Infected Patients in Iraq

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Abstract

Background: Chronic hepatitis C virus (HCV) infection is one of the biggest problems that can harm the liver and may be fatal if left untreated. The immune response has antiviral activity that works by the action of cytokines. ***Objective***: explore the activity of cytokines against HCV in Iraqi patients before administering any antiviral drugs. ***Methods***: This study included 48 patients with chronic hepatitis C who had never received any medication before. Patients were monitored in the Gastroenterology and Hepatic Hospital at Baghdad's Medical City Department. Plasma levels of cytokines IFN-γ, IL-12, and IL-18 were measured using ELISA, and the correlation with clinicopathological parameters was studied as well as HCV genotype and the severity of disease. ***Results***: Plasma levels of IL-18 and IFN-γ were significantly higher in treatment-naïve HCV patients compared to the healthy control group. However, plasma levels of IL-12 did not differ significantly between the two groups. Additionally, chronic infection with HCV genotype 4 was associated with a significant increase in AST levels, which are related to liver disease. ***Conclusions***: Elevated levels of IL-18 and IFN-γ in untreated patients suggest their important role in the immune response against HCV infection. Despite the lack of correlation with clinicopathological parameters, the increased AST

levels in genotype 4 need further investigation to determine the effect on the liver disease progression.

Keywords: Chronic hepatitis C, Liver disease, Immune response.

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RUCIC2025-03: Impact of New Antibiotic Introduction on Antimicrobial Stewardship in Jordanian Hospitals: A Multicenter Observational Study

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Abstract

Background: The Antimicrobial Stewardship Program is implemented worldwide to decrease antibiotic resistance, decrease the cost of treatment, and improve safety. While the increase in antibiotic resistance is not being counteracted by developing new antibiotics by pharmaceutical companies, special precautions when handling new antibiotics should be implemented in Antimicrobial Stewardship Programs. ***Objective***: This study aims to assess the impact of introducing new antibiotics on hospital policies in Jordan. ***Methods***: This is an observational multicenter study among three hospitals in Amman, Jordan, where the effect of new antibiotics (Delafloxacin, Ceftobiprole, and Ceftazidime/Avibactam) introduction was assessed by studying the adherence toward correct antibiotic administration, indication, and the needed pre-approvals, in addition to the availability of educational programs for the staff. ***Results***: Among the three participating hospitals, two out of three had a pre-approval system when dispensing new antibiotics, while about two-thirds of the patients who administered the studied antibiotics were given the correct administration technique, while about half of the cases were given to an unapproved indication. Finally, none of the participating hospitals had a specific educational session about the antibiotics studied for the staff. ***Conclusions***: Handling new antibiotics should go through a controlled system to reserve them as much as possible; therefore, more studies should take place to study the optimum approach when introducing new antibiotics, and awareness campaigns should target healthcare settings to increase healthcare providers awareness regarding the use of such antibiotics.

Keywords: Antibiotics, Antibiotics stewardship, Jordanian hospitals.

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RUCIC2025-04: Assessment of Denture Hygiene Attitude and Practice among Iraqi Denture Wearers: A Questionnaire-based Survey

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Abstract

Objective: The aim of the present study was to assess the attitude and practice of denture hygiene among Iraqi denture wearers coming from different socioeconomic and educational levels. ***Methods***: A total of 200 denture wearers were included in the present questionnaire-based survey after considering inclusion and exclusion criteria. The questionnaire was applied to patients attending private dental clinics, educational dental schools, and governmental dental hospitals to include patients from different socioeconomic statuses in the survey. A total of 18 questions were selected and verified by three prosthodontists. These questions were designed to assess the denture hygiene practice and the influence of socio-demographic characteristics on maintaining denture hygiene. Statistical analysis was conducted after collecting the data. ***Results***: The questionnaire result showed that most of the denture wearers cleaned their dentures once a day mechanically but improperly. After assessing the condition of their dentures, most patients rated their dentures as "clean," although the prosthodontists' rating was "poor." Individuals from higher socioeconomic and educational levels had more information about denture cleaning methods. Approximately a third of the patients reported wearing their dentures day and night, while only 8% used denture cleansing tablets while storing their dentures. Furthermore, the result showed a significant correlation between the efficiency of cleaning and denture-induced fungal infection, which clarifies that improper cleaning eventually leads to fungal infections. ***Conclusions***: The results of this survey revealed that patients attending

educational and governmental dental clinics had lower knowledge and attitudes toward denture hygiene compared to patients with higher socioeconomic status attending private clinics. As dentists, we should provide more detailed information to patients regarding denture hygiene and storage techniques.

Keywords: Attitude, Denture, Hygiene, Practice.

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RUCIC2025-05: Frequency of Virulence Genes in Nasal Infections with Methicillin-Resistant *Staphylococcus aureus* Possessing the *mecA* Gene in Bagdad

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Abstract

Background: Recently, there has been a great increase in methicillin-resistant *Staphylococcus aureus* (MRSA) in a variety of countries worldwide. In the past, MRSA was predominantly recognized for its significant role in skin and soft tissue infections. Nevertheless, as a result, it has become more prevalent worldwide and has been increasingly linked to invasive infections, particularly severe community-acquired pneumonia (CAP) in pediatric populations. ***Objective***: This research looked at the *mecA* gene and other virulence factors (icaA, icaB, hlA, and mecA genes) in MRSA strains that were found in burn patients in Baghdad, Iraq. ***Methods***: One hundred twenty-seven isolates from children aged 1–12 years were identified by VITEK-2 and confirmed via PCR technique. ***Results***: The results revealed the prevalence of MRSA carriers at 31.49%. The resistance rates of the isolates to cefixime, vancomycin, cephalothin, clindamycin, co-amoxiclav, amoxicillin, cotrimoxazole, and cefoxitin were 90%, 90%, 87.5%, 45%, 92.5%, 95%, 17.5%, and 100%, respectively. Five (83%) MRSA strains tested positive for the mecA gene, while three (50%) were positive for the *icaA*, *icaB*, and *hlA* genes. ***Conclusions***: High-frequency nasal infection with MRSA that carries the virulence mecA gene was reported in a sample of Iraqi people with nasal infections.

Keywords: MRSA, *mecA* gene, Nasal infection, Virulence gene.

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RUCIC2025-06: Synthesis, Characterization, and Evaluation of the Biological Activities of New Transition Metal Complexes with Organic Ligand

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Abstract

Background: A series of new formamidine transition metal complexes have been synthesized and characterized. ***Objective***: Reaction between metal ions (Mn^{+2}, Fe^{+2}, Pd^{+2}, Rh^{+3}, Pt^{+4} and Mo^{+6}) and (N, N-bis-(m-nitroaniline)) created air stable complexes with distinct assembles (octahedral for Fe^{+2}, Rh^{+3}, Pt^{+4} and Mo^{+6}, square planer for Pd^{+2}, tetrahedral for Mn^{+2}). The structures of these compounds were identified using various techniques. ***Methods***: IR spectra verified how the formamidine group acts as a bidentate N_2 ligand chelating with the metal ions. Mass spectroscopy confirmed the suggested geometries. ^{1}H-NMR has also detected the existence of the ligand (HL) and consequently complexation with the metals. Besides, elemental microanalysis, ultraviolet-visible spectroscopy, conductivity, and melting point examinations were implemented. The biological activity of the prepared ligand and its synthesized complexes has been assessed against bacterial species, one of Gram-positive bacteria and the other of Gram-negative bacteria, as well as fungi screening. ***Results***: Analytical and physical information about the produced complexes and the ligand (HL) prepared ligand from triethyl orthoformate and m-nitroaniline by using 2 drops of glacial acetic acid. 3 types of reactions were performed using 1:1, 1:2, and 1:3, but the successful results were 1:2, and based on this, measurements of the preparation were made. Several solvents, THF, DMSO, and DMF, were used; when DMSO was used as a solvent, it was difficult to evaporate, but the best result was THF. Then react with metal salts by using THF solvent. ***Conclusions***: In conclusion, formamidine ligand prepared simply from the reaction of triethylorthoformate and *m*-nitroaniline. Subsequently,

coordination with the following metal ions (Mn^{+2}, Fe^{+2}, Pd^{+2}, Rh^{+3}, Pt^{+4} and Mo^{+6}) forms air-stable compounds with distinct morphologies.

Keywords: Biological activity, Formamidine ligand, Transition metal complexes.

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RUCIC2025-07: The Role of the Pharmacists as Environmental Stewards: A Strategy to Enhance Safe Medication Disposal

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Abstract

Background: The increasing use of medications, driven by population growth and an aging demographic in Malaysia, has resulted in a significant accumulation of pharmaceutical residues. This trend raises concerns regarding its detrimental effects on the environment and public health. The role of hospital and community pharmacists in offering guidance and practices for the safe disposal of medications is insufficiently highlighted in existing literature. ***Objective***: This study aims to evaluate the awareness of unused and expired medication disposal among practicing pharmacists (both hospital and community settings) in Malaysia, as well as to investigate the facilitators and barriers to the implementation of medication disposal programs in their respective environments. ***Methods***: A qualitative study was conducted involving 40 practicing pharmacists through semi-structured interviews using open-ended questionnaires. The interviews were recorded and transcribed verbatim. The data were subsequently analyzed thematically using an interpretative description approach. ***Results***: Three primary themes emerged from the analysis: (1) practices and perceptions regarding pharmaceutical waste disposal; (2) barriers or challenges associated with the implementation of pharmaceutical waste disposal services, along with potential solutions; and (3) strategies for enhancing awareness among the public and practicing pharmacists. Overall, most participants exhibited a limited understanding and awareness of medication disposal practices. ***Conclusion***: The underutilization of medication disposal programs in Malaysia is closely linked to low levels of awareness among both the public and practicing pharmacists. It is therefore recommended that education and training initiatives be prioritized to facilitate the effective implementation of medication disposal programs.

Keywords: Environmental steward, Medication disposal, Pharmacists, Safety.

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RUCIC2025-08: Receiver Operating Characteristic for Salivary Protein: Acidic- PRP, IgA, CA in Relation to Dental Caries in Iraqi Children

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Abstract

Background: Dental caries is reported to be one of the oldest and most prevalent diseases affecting humans. Caries processes can be influenced by salivary composition, which includes ions and proteins. ***Objective***: This study was carried out to compare some salivary protein concentrations between caries-free and severe caries children associated with the development of dental caries. ***Methods***: Saliva samples were taken from 80 preschool Iraqi children aged between 3 and 5 years old. They were divided into a case group, which included 40 children with severe types of caries and 40 children free of caries. Oral examination was done by assessment of dental plaque, caries experience, and severity. Detection of salivary protein levels was done by using enzyme-linked immunosorbent assay kits. The statistical approaches included univariate statistical tests and receiver operating characteristic curves (ROC) with the corresponding area under the curve (AUC). ***Results***: According to this study, AUC was 100% for a-PRP; however, AUC was 72.9% and 89.3% for s-IgA and CAVI, respectively. The cut-off point of a-PRP was 34.75 ng\ml; so the a-PRP level >34.75 was a predictor for dental caries development while the cut-off point of s-IgA was 4.37 or 5.17 ng\ml and CA6 was 6.55 ng/ml, s-IgA level < 4.37 and CA6 level < 6.55 ng/ml are predictors for dental caries in children, however, s-IgA level > 5.17 was a predictor for caries-free children. ***Conclusions***: According to the results of this study, salivary protein plays an important role in the development and diagnosis of dental caries in children.

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RUCIC2025-09: Serological Detection of Three Cardiac Dysfunction Biomarkers in Chronic Kidney Disease Patients with and without Hepatitis C Virus Infection

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Abstract

Background: Chronic hepatitis C virus infection is a global health issue that has been related to elevated rates of cardiovascular diseases among chronic kidney disease patients. ***Objectives***: Determine the impact of infection with hepatitis C virus on the severity of cardiac diseases among patients with chronic kidney diseases through the measuring of 3 cardiac dysfunction biomarkers. ***Methods***: Serum samples were collected from 180 Iraqi chronic kidney disease patients [150 of them were infected with hepatitis C virus and 50 were clear from any viral existence (patient group)] and used for the detection of interleukin-6, N-terminal pro-brain natriuretic peptide, and cardiac troponin-T using the ELISA technique. ***Results***: Elevated serum levels of the detected biomarkers were demonstrated among the patients group in comparison to the control group. Strong positive statistical correlations were seen between interleukin-6 and the other detected biomarkers among the patient group. Another positive correlation was revealed between the cardiac dysfunction biomarkers themselves among the patient group. ***Conclusions***: Chronic kidney disease patients infected with hepatitis C virus were at higher risk of cardiovascular complications. The findings of this study indicate the importance of regular screening of cardiac dysfunction biomarkers among chronic kidney disease patients in general and among patients with hepatitis C virus infection in particular to prevent the risk of such complications.

Keywords: HCV, Interleukin-6, Kidney disease, N-Terminal-pro-brain, Troponin-T.

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RUCIC2025-10: Aesthetic Crown Lengthening for Gummy Smile Correction: A Case Report

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Abstract

Background: Cosmetically acceptable smiles show a gingival display of up to 3 mm. Gingival display of greater than 3 mm results in a gummy smile, which has a very negative impact on both the patient's smile and psychology. Multiple treatment modalities are available nowadays, such as gingivectomy, clinical crown lengthening, lip reposition, orthodontic extrusion, orthognathic surgery, and Botox injections. ***Objective***: To illustrate a clinical case report of aesthetic crown lengthening for excessive gingival display management. ***Case Report***: A 22-year-old female patient was referred to the periodontal clinics at the Teaching Dental Hospital, College of Dentistry, Baghdad University, with a chief complaint of excessive gingival display during smiling. The case was diagnosed as delayed passive eruption of Type I Subtype A with increased vertical maxillary height. The treatment plan comprised an initial phase of periodontal therapy followed by a 2-week follow-up period, digital smile design & surgical guide fabrication, and finally a two-step aesthetic clinical crown lengthening. After 10 days, the sutures were removed, and complete healing was uneventful for 1 month. ***Results***: satisfactory results were obtained upon complete healing with an acceptable gingival display of 2 mm along with the elimination of pseudo-pockets that restored normal clinical crown lengths. Bone recontouring greatly enhanced smile dynamics and provided a smooth translation path for the upper lip during function. ***Conclusions***: Aesthetic crown lengthening is a safe, effective procedure to restore the patient's esthetic and healthy smile.

Keywords: Biologic width, Crown lengthening Gingivectomy, Gummy Smile, Surgery.

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RUCIC2025-11: The Effect of Some Antibacterial Agents on the Growth of Certain Bacteria that Cause Dental Disease

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Abstract

Background: To combat dental caries, new kinds of antimicrobial agents have been created. To advance knowledge of the significance of microbial interactions in dental plaque and combinational treatments, this study will concentrate on the application of systemic antibiotics in relation to their clinical use to date, including their development history, side effects, uses, and disc diffusion method. ***Objective***: Nonetheless, novel antibacterial drugs have been created to combat tooth cavities. This study aims to improve knowledge of the significance of microbial interactions in dental plaque and combinational treatments by examining the use of systemic antibiotics in clinical settings, including their development history, side effects, applications, and disc diffusion method. ***Methods***: By using the diffusion by tablet method to measure the inhibition diameter of each antibiotic per concentration, antibiotic tablets containing 50, 100, and 200 mg/g of antibiotics (vancomycin and imipenem) were used to assess the antibiotics' sensitivity against *Streptococcus mutans* and Lactobacilli. ***Results***: By using the diffusion by tablet method to measure the inhibition diameter of each antibiotic per concentration, antibiotic tablets containing 50, 100, and 200 mg/g of antibiotics (vancomycin and imipenem) were used to assess the antibiotics' sensitivity against *Streptococcus mutans* and *Lactobacilli*. ***Conclusions***: It was observed that the antibiotic vancomycin is more effective on bacterial growth than imipenem in the same concentrations, with more influence on the growth of *Streptococcus mutans* than *Lactobacilli*.

Keywords: Antibacterial agents, Dental diseases, Growth,

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RUCIC2025-12: The Use of Novel SiO_2/ZrO_2 Core-Shell Particle for the Improvement of Resin Adhesion to Zirconia

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Abstract

Background: Zirconia, a material widely used in dentistry, requires surface treatment to achieve an effective bond with resin cement. ***Objective***: To evaluate the effectiveness of a core-shell SiO_2/ZrO_2 powder for tribochemical silica coating of zirconia surfaces and to investigate the effects of different operating air pressures and blasting times on shear bond strength. ***Methods***: Zirconia milling machines waste with a particle size of 100-125 µm was coated with silica by the sol-gel method. The core-shell particles were used to blast zirconia surfaces under air pressure (1.8, 2.8, 3.8, 4.8 bar) and time durations (5, 10, 15, 20 seconds). For comparison, a commercial SiO_2/Al_2O_3 core-shell powder was used at 3.8 bar for 10 seconds. Micro-shear bond strength was measured. Surface topography was investigated using FESEM, and elemental analysis EDS was performed. Surface roughness was measured by AFM, and XRD analysis was performed to evaluate the transformation of zirconia. ***Results***: The highest adhesion values were obtained with the SiO_2/ZrO_2 powder at 2.8 bar for 10 seconds. The results showed higher bond strength for zirconia blasted with SiO_2/ZrO_2 powder than that blasted with SiO_2/Al_2O_3 powder. ***Conclusions*:** The new powder, which is derived from residual zirconia, could be a cost-effective alternative to commercially available powders, offering improved bond strength and less damage to the zirconia surface.

Keywords: Coating, Microshear bond strength, Silica coated alumina, Tribochemical silica, Zirconia,

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RUCIC2025-13: Evaluation of the Use of Temporalis Muscle Flap and Temporalis Facia Flap as Autogenous Interpositioning Material in the Treatment of TMJ Ankylosis

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Abstract

Background: Temporomandibular joint (TMJ) ankylosis is an important joint disorder that, in addition to emerging through trauma, can also arise because of local and systemic infections. Various surgical techniques have been defined in its treatment. ***Objective***: To evaluate the effectiveness of the temporalis muscle or fascia as autogenous interpositional material to prevent TMJ reankylosis and to evaluate the mouth opening after interpositional arthroplasty. ***Methods***: Fifteen patients with TMJ ankylosis were treated with interpositioning arthroplasty from October 2011 to September 2014, of which 11 were female and 6 were male. Twelve patients had unilateral ankylosis, and three patients had bilateral ankylosis. We used a temporalis muscle flap as interpositioning material in eleven cases, while in the other four patients we used temporalis fascia.

The follow-up period was at least 6 months. All patients were assessed for mouth opening pre- and postoperatively and had mouth opening exercises from the first postoperative day. ***Results***: This study revealed a female predilection with a 60% female-to-male ratio and a male ratio of 40%. Trauma was the main cause reported, with 87%, and infection was in 13%. Patients had a preoperative interincisal opening of -2 to 5 mm. with an average of 34.6 mm. There is no significant difference in mouth opening when we used either the temporalis muscle flap or the temporalis fascia flap; however, the temporalis fascia shows superiority in regard to esthetics. Two cases reported reankylosis; weakness of the temporal branch of the facial nerve was reported in one case. ***Conclusions***: Temporalis muscle and fascia flaps as interpositioning material are a good option for treatment of TMJ ankylosis due to their proximity and low morbidity to the surgical site. Both flaps show a good result in restoring adequate mouth opening, especially when accompanied with coronoidectomy and ptyrigomassetric stripping.

Keywords: Autogenous interpositioning, Muscle flap, TMJ ankylosis.

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RUCIC2025-14: Antimicrobial Effect of Lugol Solution Against Bacteria Isolated from Patient Specimens

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Abstract

Background: Iodine has antibacterial effects that benefit both gram-positive and gram-negative bacteria. However, when germs develop resistance to standard medicines, treating bacterial illnesses becomes more difficult. The development of new antibiotics takes a long time. ***Objective***: To assess the antibacterial activity of Lugol's solution against antibiotic-resistant gram-positive and gram-negative bacteria utilizing clinical samples. ***Methods***: Following antibiotic sensitivity tests on 100 bacterial isolates resistant to 70% or more of the tested antibiotics, the minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) of Lugol's solution were determined. ***Results***: A 2% Lugol's solution was tested on 100 isolated bacterial specimens, and it was revealed that the suppression of bacterial growth grew steadily as the Lugol dilution increased. Bacterial growth was significantly inhibited by 32 µl at a concentration of 9% and 64 µl at 28%. Concentrations of 128 µl, 256 µl, 512 µl, and 1024 µl significantly reduced bacterial growth by 44%, 82%, 92%, and 96%, respectively. ***Conclusions***: Lugol's iodine solution was more effective against gram-positive than gram-negative bacteria. These findings suggest that Lugol's solution could be an effective substitute for standard antibiotics in the treatment of bacterial infections, particularly those caused by germs that are resistant to them.

Keywords: Antibiotic resistance, Bacteria, Gram negative, Gram positive, Lugol solution.

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RUCIC2025-15: Risk of Cancer and Radiation Dose Received by Patients during Common Radiologic Imaging

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Abstract

Background: Although radiological diagnostic studies (RDS) are an important and acceptable part of medical practice, they are not without hazards. It is associated with an increased risk of cancer. Unfortunately, the typical and safe dose of each radiological examination is not known. Most of our knowledge of cancer risk comes from studies of survivors of those exposed to whole-body radiation from atomic bombs in Hiroshima & Nagasaki, jobs associated with radiation exposure, Chernobyl survivors, and patients treated with radiation therapy for cancer and other diseases. ***Objective***: To estimate radiation dose received by patients from RDS and lifetime attributable risk of cancer (LTARC). ***Methods***: A prospective study was conducted in Al-Kindy Teaching Hospital (KTH) during the period from 1st June 2021 to 31st August 2022. The study was performed on 530 adult patients. There were 395 males (74.5%) and 135 (25.5%) females; the mean age was 41.5 years (20-63). Different RDS were considered, including chest x-ray (CXR), computed tomography scans (CTS), and mammography (MG). ***Results***: CXR was performed for 260 patients (49%), which delivers 0.12 mSv. MG exposes 150 patients (28.3%) to 3 mSv. While CTS, which delivers 6.2-16 mSv according to the anatomic area being scanned, was done for 120 (22.7%) patients. ***Conclusions***: There is a great abuse in using RDS by both patients and doctors, without realizing their danger and association with cancer development. It was proved that RDS exposes patients to different types of tissue injury, including cancer.

Keywords: Cancer risk, Diagnostic radiology, Ionizing radiation, Radiation dose.

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RUCIC2025-16: Inhibitory Effects of Purified Hemolysin from *S. marcescens* on the Growth of Certain Pathogenic Bacteria Isolates

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Abstract

Background: *Serratia marcescens* colonies are found in approximately 30% of the general population and can lead to a wide range of infections, from UTI, endocarditis, and septicemia. Hemolysins are extracellular proteins that are produced by many G-ve (e.g., *E. coli*, *Proteus spp*., *Vibrio spp., Pseudomonas aeruginosa*) and G+ve bacteria (e.g., *Streptococcus spp., Staphylococcus aureus, Listeria spp., Bacillus cereus, Clostridium tetani*). Hemolysins have therefore always been considered virulence factors. Most hemolysins cause lysis of erythrocytes by forming pores of varying diameters in the membrane and are designated as such because they could lyse (RBCs). ***Objective***: Purification and characterization of hemolysin from isolate of *Serratia marcescens*. ***Methods***: Bacterial samples were identified by biochemical tests and confirmed by the Vitek 2 system. While semi-quantitative screening on blood agar (5% human blood) revealed that all isolates were hemolysin producers but in different efficiencies. Hemolysin was extracted by cooling centrifugation and purified by many steps, including precipitation by ammonium sulfate, dialysis, and ion exchange chromatography by using DEAE-cellulose and gel filtration chromatography by using Sephadex G-75. The molecular weight of hemolysin was determined by gel filtration chromatography on Sephadex G-75 while the optimum pH and temperature for hemolysin stability were also determined. ***Results***: The results showed that 27 isolates were identified as *Serratia marcescens*. The highest percentage of isolation rate was (16) (59.26%) from urine, (8) (29.63%) from blood, two (2) (7.41%) from burn, and one (3.70%) from wound. The blood agar method was the first method for detecting hemolysin production, out of 27 isolates. 16/27 (59.26%) of isolates were positive hemolysin producers, while 11/27 (40.74%) were non-producer isolates. The spectrophotometric method was the second method for hemolysin production. Absorbance of control without hemolysin at 571 nm was 0.070 (1%), while absorbance of complete hemolysis was 7.0 (100%). The best isolate was for hemolysin production by two methods. Hemolysin was purified by a three-step method: ammonium sulfate precipitation at 75% saturation followed by ion exchange chromatography using DEAE-cellulose and third gel filtration chromatography using a Sephadex G75 column and characterized. The specific activity was 1390 U/mg protein with 2.87 hemolysin folds and a 6.96% recovery yield. The molecular weight of hemolysin was (45000) Da. Hemolysin activity was stable at pH values of 7-9, but the best activity was at pH 7.2 = 5.9 unit/ml. Hemolysin was thermally stable at 30°C. The antimicrobial activity of crude and purified from the *S. marcescens* isolate was maximum antibacterial activity against *S. aureus* (purified 28 mm, crude 23 mm) and *Bacillus cereus* (purified 26 mm, crude 20 mm). ***Conclusions***: Conventional methods can be performed to extract hemolysins, and it was produced when the conditions were like those of the host. The antimicrobial activity of crude and purified hemolysin from *S. marcescens* is antibacterial activity against *S. aureus* and *Bacillus cereus*.

Keywords: Ammonium sulphate precipitation, Gel filtration chromatography, Hemolysin, Ion exchange chromatography, *Serratia marcescens*.

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AUCIC2025-17: Development of an Ion Association Complex in the Indirect Determination of Quinine and Quinidine Microquantities Using GET-AAS

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Abstract

Background: Alkaloids have been used medicinally for their antipyretic, antimalarial, anti-inflammatory, analgesic, and muscle relaxant qualities. ***Objective***: The purpose of this study is to determine a quick, easy, and accurate method for estimating a trace amount of quinine (QNN) and quinidine (QND) in pure and therapeutic chemicals. ***Methods***: The resultant complexes were isolated and identified, and the pH level at which the complex was formed and the ion concentration of PtI_4^{2-} were investigated using chloroform to extract the complex, solvent volume, and extraction time. ***Results***: The calibration graphs for (QNN) and (QND) are linear between 0.2 and 5.0 ppm and 0.1 and 5.3 ppm, respectively, relative to the standard deviation R.S.D% (n = 5) and precision. By examining the impact of equal, duplicate, and triplicate quantities of certain popular excipients on selectivity, such as flour, glucose, lactose, glycerin, and talc, the PtI_4^{2-}Alkaloids' molar ratio was established as 11:1, and the standard addition method was used to determine the

QNN content of the pharmaceutical tablets. ***Conclusions***: We can assess trace or ultra-trace amounts of QNN and QND in pharmaceutical samples using the PtI_4^{2-} ion as a suitable reagent. The procedure was compared with a previous one using different reagents and was found to yield compatible results.

Keywords: Electrothermal atomic absorption spectrometry, Indirect determination, Ion-association complex, Pharmaceutical compounds, Solvent extraction.

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RUCIC2025-18: Response Assessment of the Anesthesia Residents and Assistants to the Oximeter Alarm

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Abstract

Background: Alarms and sounds in the operating theater that alert personnel to a crisis can be destructive; also, some health givers don't have the sense of responsibility to make sure that the alarm system has been settled on their own standards, making sure that the alarm is audible to them. This can result in health givers ignoring genuine alarm warnings. ***Objective***: To evaluate the response and the sense of responsibility of anesthesia assistants and anesthesia residents to the pulse oximeter alarm. And find out the distractive objects to anesthesia personnel if present. ***Methods***: An observational study was carried out on 80 responders in Kadhimiya, Al Yarmook, and Baghdad teaching hospitals. From April 2020 to July 2021. A non-standardized oximeter alarm (left to the operator) was initiated to bring the attention of the anesthesia resident and assistant. And record which one will pay attention first and how much time it takes him to take an action. ***Results***: A minority of participants (6 staff, 7.5%) neglected the alarm. However, most participants (48 staff, 68%) searched for the cause of the alarm. On the other hand, 26 participants (35.5%) called for help. The overall mean interval to response was 9.03±6.53 sec (range= 3-35 sec). Stratifying the intervals, it revealed that half (50%) of the participants responded within ≤ 5 sec of the alarm. Anesthesia residents tend more to search for a cause (85.42%) than simply neglect the alarm (50%) or call for help (57.92%). Anesthesia assistants, on the other hand, tend to search less for causes of alarm (14.58%). ***Conclusions***: Anesthesia assistants and anesthesia residents had a high rate of alarm response (92.5%). Most anesthesia assistants and anesthesia residents' responses to alarms with a relatively short interval (less than 10 sec) compared with international intervals. There was a negative association between alarm response and age of anesthesia assistants and anesthesia residents. Anesthesia residents tend to search for the cause of the alarm, while anesthesia assistants' tend to call for help.

Keywords: Anesthesia, Assistants, Oximeter alarm, Residents.

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RUCIC2025-19: Knowledge and Awareness of Food and Drug Interactions: A Survey among a Sample of Iraqi People in Baghdad

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Abstract

Background: Food-drug interactions (FDIs) are not adequately recorded and can be linked to several factors, such as insufficient documentation of food history, lack of follow-up, or lack of awareness. Objective: To assess the level of knowledge and awareness among the Iraqi population regarding food-drug interactions (FDIs) in the city of Baghdad. ***Method***: This study was conducted as a cross-sectional study, spanning from March 2024 to May 2024, and included a total of 612 individuals. Participants were administered a standardized questionnaire to gather data on their understanding of food-drug interactions (FDIs). A descriptive analysis was conducted to ascertain the frequency of responses. ***Results***: The overall rate of response was 85%, with a greater proportion of females; 92% were in the age bracket of 20-30 years. Just 23% of the participants had encountered FDI at least once throughout their lifetimes. Drug package leaflets should be read before using the medication, according to over 91% of respondents. 91% of respondents acknowledged that acidic foods and beverages can impact the absorption of pharmaceuticals and lead to interactions between food and drugs. Furthermore, they firmly believe that alcohol and drugs should never be ingested together. ***Conclusions***: The participants were knowledgeable and conscious about food-drug interactions (FDIs). This outcome has the potential for further optimization, given that a significant majority of respondents expressed a

favorable inclination towards reading the medicine label prior to utilizing pharmaceuticals.

Keywords: Awareness, Drug-food interactions, Iraq, Knowledge.

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RUCIC2025-20: The Development and Assessment of a Self-Nanoemulsifying Drug Delivery System Including Bilastine: An Effective Strategy to Improve Bioavailability

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Abstract

Background: Innovative approaches, including self-nanoemulsifying drug delivery systems, have the potential to solve a variety of drug formulation challenges, such as solubility, stability, and bioavailability. The drug candidate in this research is the strong and extremely selective H1-antihistamine, bilastine. ***Objective***: To formulate an oral self-nanoemulsion of bilastine to increase its permeability to prepare formulae and potential for lymphatic transport through GIT mucosa. ***Methods***: A total of fifteen liquids self-nanoemulsion drug delivery systems (SNEDDS) formulas were developed using oleic acid, cremophore, and transcutol as the appropriate oils, surfactants, and cosurfactants based on the solubility studies of bilastine in various oils, surfactants, and cosurfactants. The component phase behavior and the area of nanoemulsion were assessed using pseudo-ternary phase diagrams. The physicochemical properties of the formulas, in addition to thermodynamic stability, droplet size, polydispersity index, zeta potential, self-emulsification time, drug content, and durability of the developed formulations, were assessed. ***Results***: This study found that formula 5, which contains 20% oleic acid, 27% cremophore, and 53% transcutol, had smaller particle size, good drug content, improved drug release in lab tests, and better absorption in tests outside the body compared to pure bilastine powder. ***Conclusions***: These factors all point to the preparation of self-nanoemulsifying drug delivery systems as a potential means for improving the bioavailability of poorly soluble drugs like bilastine.

Keywords: Bilastine, Bioavailability, Drug delivery system, Self-nanoemulsion.

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RUCIC2025-21: Knowledge and Practice of Undergraduate Medical Students about Self-Medication Usage: A Cross-Sectional Survey in Baghdad, Iraq

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Abstract

Background: The global trend of self-medication is increasing. Investigating problems that have the potential to cause life-threatening complications is a top priority. ***Objective***: assess self-medication practices among medical undergraduate students and evaluate their knowledge and factors for using self-medicine. ***Methods***: a cross-sectional questionnaire for 234 medical students in different medical colleges in Baghdad from November 2023 till March 2024, and their selection was done randomly. Data was collected and analyzed through SPSS version 23. A chi-square significance test was performed, and P-values < 0.05 for data were considered significant. ***Results***: The current study showed that 72% of the participants self-medicated at least twice a week during their last 6 months from the questionnaire. Painkillers and cold preparations are the most used medicines by the participants without prior consultation. More than half of the participants (53%) depend on their previous knowledge as a source of information for getting medicines, and they relied on social media more than physicians in taking medical advice. ***Conclusions***: Self-medication practices were prevalent among undergraduate medical university students in Baghdad, and most of them depended on their experiences for getting medical knowledge. Academics and pharmacists should educate their students about incorrect self-

medication practices and restrict prescription-used medicines.

Keywords: Knowledge, Medical students, Practice, Self-medication.

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RUCIC2025-22: The Relationship Between Sleep Quality and Academic Performance among Medical Students in Baghdad, Iraq

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Abstract

Background: Sleep is essential for human survival and influences well-being and physiological processes in humans, particularly cognitive function. Sleep deprivation leads to reduced concentration and academic performance. Medical students are highly susceptible to experiencing sleep problems due to the rigorous demands of their academic burden. ***Objective***: This study aims to describe the sleep patterns among medical students and investigate the correlations between students self-reported sleep quality and their self-reported academic achievement. ***Methods***: A cross-sectional study was conducted in medical departments (medicine, dentistry, pharmacy) focused on investigating sleep habits according to the criteria in the Diagnostic Manual of Mental Disorders IV and the Pittsburgh Sleep Quality Index. ***Results***: A survey of 632 medical students, averaging 20 years of age, yielded insights into their sleep patterns. Participants averaged 6.1 hours of sleep nightly, with 70.5% retiring after midnight and 16% rising before 6:00 a.m. Furthermore, 45.2% encountered sleep delay exceeding 30 minutes, while 54.5% indicated awakening at least once throughout the night. Nightmares constituted the predominant form of parasomnia, with 80.8% participating in napping. Of those surveyed, 9.3% indicated inadequate sleep quality, which was associated with variables including sleep onset duration and bedtime practices. The results emphasize considerable sleep difficulties that may impact the students' general well-being. ***Conclusions***: The sleep habits of Iraqi students were like those seen in research conducted in Arabic nations. Prevalent sleep disturbances did not exhibit any significant correlation with academic achievement.

Keywords: Academic performance, Baghdad, Medical students, Sleep quality.

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RUCIC2025-23: Evaluation of Lipid Profiles in Good and Poor Controlled Patients with Type 2 Diabetes Mellitus

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Abstract

Background: Dyslipidemia is a frequent complication of Type-2 Diabetes Mellitus (T2DM) and significantly contributes to cardiovascular morbidity. While glycemic control is a key factor in diabetes management, its relationship with lipid profiles remains debated. ***Objective***: to evaluate and compare lipid profiles in T2DM patients with good and poor glycemic control. ***Methods***: A cross-sectional study was conducted on T2DM patients, classified into two groups based on their HbA1c levels: good control (HbA1c < 7%) and poor control (HbA1c ≥ 8%). Fasting lipid profiles, including total cholesterol, high-density lipoprotein (HDL), and triglycerides, were measured and analyzed. The statistical significance of differences between the two groups was assessed using appropriate statistical tests (two-way ANOVA). ***Results***: The study included 60 T2DM patients. Although the poor control group exhibited higher average levels of total cholesterol, LDL, and triglycerides, the differences between the two groups were not statistically significant (p> 0.05). Similarly, HDL levels did not show significant variation between groups. ***Conclusions***: No significant relationship was found between lipid profiles and glycemic control in T2DM patients. These findings suggest that dyslipidemia in T2DM may not be solely dependent on glycemic control, indicating the need for regular lipid monitoring and management regardless of HbA1c levels. Further research with larger sample sizes may help clarify these relationships and guide comprehensive management of diabetic patients.

Keywords: Diabetic patients, Lipid profile, T2DM.

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RUCIC2025-24: Prevalence, Risk Factors, and Knowledge Gaps of Anemia in Pregnant Women in Baghdad, 2023

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Abstract

Background: Anemia during pregnancy is a prevalent public health issue in low- and middle-income countries, including Iraq. The condition, primarily caused by iron deficiency, poses serious risks to maternal and fetal health. Despite various efforts to address this, anemia remains a critical challenge for pregnant women in Iraq. The study aimed to assess the prevalence of anemia, examine factors associated with anemia during pregnancy, and evaluate the awareness of pregnant women regarding anemia in selected primary healthcare centers in Baghdad. ***Methods***: A cross-sectional study was conducted from September to December 2023 across 10 randomly selected PHCCs in Baghdad. A total of 400 pregnant women, selected using systematic random sampling, participated in the study. Data was collected through structured questionnaires covering sociodemographic, obstetric, and knowledge-related factors. Hemoglobin levels were measured using standard laboratory procedures to classify anemia. Descriptive statistics, chi-square tests, and logistic regression were employed to analyze the data and identify factors significantly associated with anemia. ***Results***: The prevalence of anemia in the studied population was 43%, with 24% experiencing mild anemia, 17.5% moderate anemia, and 1.5% severe anemia. Significant factors associated with anemia included maternal age, socioeconomic status, education level, employment status, rural residence, and dietary iron intake. Pregnant women with limited education, residing in rural areas, and those with lower socioeconomic status were more likely to develop anemia (p<0.05). Additionally, a strong association was observed between infrequent dietary iron intake and increased risk of anemia. ***Conclusions***: Anemia remains a substantial health concern among pregnant women in Baghdad, influenced by sociodemographic and nutritional factors. The findings emphasize the need for targeted interventions, including nutrition education and improved prenatal care, to mitigate anemia and its adverse health outcomes. Addressing these factors can lead to improved pregnancy outcomes and reduce the prevalence of anemia in Iraq.

Keywords: Anemia, Baghdad, Knowledge gap, Pregnancy, Risk factors.

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RUCIC2025-25: Knowledge, Attitude, and Practice of Doctors at The Medical City About How to Break Bad News

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Abstract

Background: Technical and scientific talents typically take precedence over communication skills in medical school. This may have led to physicians' ineptitude, avoidance of patient discussion, and concentration on treatment without regard for patients' sentiments. As a result, despite consensus procedures for breaking bad news (BBN), physicians are frequently undertrained or inexperienced in this area. ***Objective***: To assess physicians' knowledge, attitude, and practice (KAP) regarding breaking bad news (BBN) in Medical City teaching hospitals in Iraq and to find associations of them with the participants' demographic variables. ***Methods***: A cross-sectional study with analytic elements was conducted in medical city hospitals. All doctors of any age, gender, or specialty working in medical city hospitals (except specialties with no direct contact with patients) can be included in the study. Demographic data of the doctors were taken with a questionnaire structured by the researcher's review of many kinds of literature, researchers, and previous studies; the opinions of four experts are optional to investigate the content of the questionnaire taken into consideration. Demographic data of the patients were taken with a questionnaire structured according to the SPIKES protocol. ***Results***: The majority showed good knowledge, 155 (77.1%), while 46 (22.9%) showed fair knowledge. Regarding participants' overall attitudes, the majority showed mild attitudes, 162 (80.6%), while 38 (18.9%) showed high attitudes, and one (0.5%) showed low attitudes. Regarding practice, 166 (82.6%) showed correct

practice, and 35 (17.4%) showed a moderate attitude. ***Conclusions***: Most participants had good knowledge about breaking bad news, a mild attitude, and correct practice.

Keywords: Attitude, Baghdad, Breaking-bad-news, Iraq, Knowledge, Practice.

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RUCIC2025-26: Prevalence of Non-Surgical Aesthetic-Cosmetic Procedures among Iraqi Women

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Abstract

Background: The non-invasive cosmetic sector has seen substantial growth during the last ten years, with a significant global increase in the number of nonsurgical and total cosmetic operations. ***Objective***: to determine the extent to which Iraqi women do these procedures and who does them and to determine complications during and after it. ***Method***: An online poll with an analytical component was undertaken for Iraqi women using social media groups (Facebook, WhatsApp, Fiber, and Telegram) and accessible emails. Google Form responses are provided as an Excel sheet for analysis after being coded and converted to an SPSS version 26 file. ***Results***: 605 female enrolled in this study with response rate 75.63%, & mean age 37.30±11.905; the highest percentage complete college/institution 303(50.1%), medical staff 178(29.4%), Employees 144(23.8%), currently married 377(62.3%), two-children 130(30.52% and 225(37.2%) of them had history of having cosmetic non-surgical procedures, highest percent had Botox 83(13.7%), followed by had filer 65(10.7%), then removing hair by laser 34(5.6%), tattoo 29(4.8%), scribe 13(2.1%), thread 10(1.7%) and whitening by laser seven (1.2%), done in the hospitals 95(42%); only 25(11.11%) had complication; five (20%) for both "failure and pain" and "pigmentation with pain", to less extend four(16%) had facial tumor. There is a highly significant association between having cosmetic non-surgical procedures and the participants' age and marital status, but there was no significant association with residency, educational level, job, monthly income, or number of children. ***Conclusions***: Nonsurgical aesthetics are common procedures among Iraqi women. Nevertheless, it is imperative to recognize that non-surgical cosmetic techniques carry inherent risks.

Keywords: Aesthetic-Cosmetic, Baghdad, Botox, Filer, Iraq, Laser, Pain, Tattoo.

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RUCIC2025-27: Management of Horizontal Root Fracture for Maxillary Central Incisor: A Case Report

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Abstract

Facial traumatic injuries are not uncommon among children and teenagers, especially within popular areas that may result in tooth loss when not treated at the time as urgent or when incorrectly diagnosed and treated. Anterior tooth loss, without a doubt, has a great impact on the appearance, especially among young females. Trauma may result in a crown or root fracture or even tooth avulsion, related to the amount and direction of force the anterior segment is subjected to. Horizontal root fractures may occur at different levels of the root; the treatment options range from observation and follow-up to endodontic treatment or even surgical intervention. The case report below shows how a girl was treated when she went to a pediatric dentist's office twelve years ago for repositioning, splinting, and endodontic treatment of a horizontal middle third root fracture with an extruded coronal part of the maxillary central incisor. After precise history taking and diagnosis to get a good prognosis and results, besides patient motivation to follow all the instructions needed for success in retaining the tooth. The aim of this case report is to clarify that the management of such cases should take into consideration all the factors needed for good results, starting with patient cooperation, dentist follow-up, gingival health, and the use of intracranial medicament. The treatment plan was to stabilize the coronal segment of the tooth in the correct position and motivate the patient for good oral care to get periodontal tissue build-up, then treat the coronal segment of the fractured tooth endodontically, leaving the separated apical part. In conclusion, horizontal root fractures of anterior permanent teeth can be treated by separating the two broken segments and treating the coronal segment of the tooth with endodontic treatment. The apical segment must be left alone when reunion is not possible, and the health of the gingival and periodontal tissues must be maintained.

Keywords: Horizontal root fracture, Maxillary central incisor, Management.

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RUCIC2025-28: Chewing Gum for the Prophylaxis of Postoperative Nausea and Vomiting after Laparoscopic Cholecystectomy in Females

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Abstract

Background: Postoperative nausea and vomiting (PONV) are two of the most common adverse effects of general anesthesia, contributing significantly to patient dissatisfaction, complications, and costs. Chewing gum has potential as a novel, drug-free alternative treatment for PONV. A significant problem in modern anesthetic practice is the adverse consequences, such as unexpected hospital admission, delayed return to work of ambulatory patients, pulmonary aspiration, wound dehiscence, and dehydration. Considering the increasing demand for ambulatory surgery, a holistic approach should be attempted before and during surgery to prevent PONV. ***Objective***: To conduct a trial of the efficacy of mint-flavored chewing gum as a prophylactic measure to prevent PONV as a part of post-anesthesia care. ***Methods***: This is a prospective randomized controlled trial. 88 female patients of age (37-62 years old) having volatile anesthetic-based general anesthesia for laparoscopic cholecystectomy will be randomized. All randomized patients have grade 3 risk factors for PONV according to the APFL score; 44 patients asked for chewing mint-flavored gum after having a grade 5 OAA/S score (respond to name in normal tone), and the other 44 patients were conducted as a control group. Both groups monitored PONV for three hours in the postoperative period. ***Results***: In the chewing gum group, nine patients experienced PONV (20.5%), while nineteen patients in the control group had PONV (43.2%). ***Conclusions***: Chewing gum showed a prophylactic efficacy in the management of PONV in female patients undergoing laparoscopic cholecystectomy. Further studies with larger sample sizes and different types of surgeries are essential to investigate this therapy.

Keywords: Chewing gum, Females, Laparoscopic cholecystectomy, Prophylaxis.

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AUCIC2025-29: Estimation of Non-Classical HLA-G Class I Serum Levels in Some Iraqi Patients with Acute Myeloid Leukemia and Chronic Lymphocytic Leukemia

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Abstract

Background: Acute myeloid leukemia (AML) is a cancer that develops quickly and spreads throughout the body in a short amount of time. In Iraq, there were 1674 new cases of leukemia registered in 2018. HLA-G is a multifunctional protein that has an important action in AML and CLL. Chronic lymphocytic leukemia (CLL) is marked by an increase in mature B-lymphocytes (CD5+ and CD23+) that accumulate in the bone marrow and spread to lymphoid tissues like the spleen and lymph nodes. CLL predominates in the elderly, and the incidence of the disease increases exponentially with age. ***Objective***: To perform immunological estimation of the HLA-G Non-Classical HLA-G Class I levels in AML and CLL patients. ***Methods***: An ELISA test was used on 120 Iraqis (60 healthy controls, 30 newly diagnosed CLL patients, and 30 newly diagnosed AML patients) from September 2020 to March 2021 at the Baghdad Medical City to find out their non-classical HLA-G Class I levels for both AML and CLL. ***Results***: About AML We found non-significant differences among the study and control groups of AML ($p > 0.05$) ($t = -4.461$, df: 58, $p = 0.000$), which may be due to monocytes being the primary secretors of sHLA-G under normal circumstances. Regarded to CLL We found a non-significant increase ($p < 0.05$) in non-classical HLA-G Class I serum levels among the CLL group compared to the control group. ***Conclusions***: We recommend studying a larger number of AML and CLL samples to get more understanding of the role of non-classical HLA-G Class I in newly diagnosed AML and CLL cases.

Keywords: Acute myeloid leukemia, Chronic lymphocytic leukemia, HLA-G Class I.

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