Dubai Medical Journal
Volume 8, Issue no. S1, DOI 10.18502/dmj.v8iS1.19282
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Meeting Report/Abstract

Proceedings Abstracts: Dubai Health Research Conference, November 15-17, 2024, Dubai, UAE

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Abstract

Overview: The inaugural Dubai Health Research Conference (DHRC) was held from November 15 to 17th, 2024, during which a diverse range of research topics were presented, reflecting the commitment of Dubai Health and the broader UAE to advancing healthcare through innovation and interdisciplinary research. The conference covered a broad spectrum of disciplines including basic biomedical science, translational research, clinical studies, public health, digital health, artificial intelligence in healthcare, surgical innovations, health professions education, quality improvement, and policy development. The objective of the conference was to showcase state-of-the-art research in which members of Dubai Health were actively involved, both locally in Dubai and internationally.

Methods: Abstracts were submitted to the Conference Scientific Committee and underwent a peer-review process. Selected abstracts were classified for either oral presentations or poster presentations. Each submission followed a structured abstract format with sections for Introduction, Methods, Results, Discussion, and Conclusion. For Case Reports, the Methods and Results sections were replaced by Case Report. Consent to publish the abstract was obtained from the corresponding authors. Previously published abstracts were excluded, to ensure compliance with the journal's copyright policies. Additionally, those abstracts that seemed unsuitable for publication and for which consent was not obtained, were excluded.

Results: A total of 316 abstracts were submitted, of which 32 were accepted for oral presentations and 235 for poster presentations. Of the 267 abstracts presented at the conference, 55 were excluded from these published proceedings (49 previously published, 3 unsuitable, 2 without consent and 1 not completed abstract). As a result, 212 abstracts were included in this compilation, consisting of 23 oral presentations (10.8%) and 189 poster presentations (89.2%).

Conclusion: This collection of abstracts from the 2024 **Dubai Health Research Conference** provides a comprehensive overview of the cutting-edge research conducted by faculty, clinicians, staff, and learners at Dubai Health. It highlights not only the institution's dedication to advancing healthcare through research but also Dubai and the UAE's commitment to promoting improved health outcomes through interdisciplinary discovery and innovation. This proceedings compilation reflects the growing momentum in research excellence across a variety of healthcare domains, and positions Dubai Health as a leading hub for scientific inquiry and healthcare advancement in the region.

Keywords: proceedings abstracts, health research conferences, oral presentations, posters presentations, MBRU, Dubai Health, Dubai, UAE

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Received: December 16, 2024
Accepted: January 30, 2025
Published: August 1, 2025

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How to cite this article: Du Plessis SS, Allam E, Beshtawy B, Raeisi R, Loney T, Abdelmannan D, et al. Proceedings Abstracts: Dubai Health Research Conference, November 15-17, 2024, Dubai, UAE. *Dubai Medical Journal*. 2025;8(S1):4–209. DOI 10.18502/dmj.v8iS1.19282

Executive Summary

The Dubai Health Research Conference provides a platform for medical and healthcare researchers from Dubai's first integrated academic healthcare system, to present their research and clinical case studies. The conference also aimed to foster opportunities for research collaborations to advance the local healthcare landscape and infrastructures. Organized by the Deanship of Research and Graduate Studies at the Mohammed Bin Rashid University of Medicine and Health Sciences, the event brought together participants from diverse backgrounds to address current challenges in healthcare. These included biomedical research, translational research, clinical sciences across all specialties, allied health research, and health education research. A particular focus was placed on digital health interventions and artificial intelligence (AI) applications. The conference featured two distinguished international keynote speakers: Dr. Angi Orphanoudaki, Associate Professor of Operations Management, Saïd Business School, University of Oxford, UK who presented "Operationalizing AI: Insights from patient management in the ED" and Dr. Patricia Maes, Professor of Media Arts and Sciences, MIT Media Lab, Massachusetts Institute of Technology, USA who discussed "How AI and wearables may transform health and wellbeing."

Through oral presentations, panel discussions, and poster displays, representatives from various Dubai Health sectors shared the experience of creating new knowledge through research. The event highlighted the importance of multidisciplinary research and collaborative practice, emphasizing the significant partnerships and ongoing collaborative research programs supported by and affiliated with Dubai Health.

Introduction

Dubai Health Colleagues,

The Inaugural Dubai Health Research Conference, held on November 15-17, 2024, at Mohammed Bin Rashid University of Medicine and Health Sciences, Dubai, UAE, marked a pivotal milestone in our collective pursuit of positioning Dubai Health as a global hub for health research and innovation. This landmark event brought together researchers, clinicians, and trainees from across disciplines within Dubai Health, creating a vibrant forum to showcase cutting-edge research, foster collaborations, and inspire the next generation of healthcare professionals.

The conference embodied the discovery pillar of Dubai Health's four-pronged mission of care, learning, discovery, and giving, reinforcing our commitment to advancing science and translating research findings into impactful clinical applications that enhance patient care. This dedication aligns with our primary value of patient first, underscoring the ultimate goal of all research efforts: improving health outcomes for individuals and communities alike.

A Rich Showcase of Research Excellence

The abstracts presented in these proceedings reflect the breadth and depth of research activities within the Dubai Health ecosystem. With over 316 submissions, the conference received an overwhelming response, a testament to the growing momentum of research within our institution. Selected abstracts were featured as oral and poster presentations, spanning a wide range of disciplines, including medical, biomedical, and health education research.

The conference also featured three distinguished invited speakers and hosted 11 interactive workshops. These offered insights into essential topics such as the role of AI in research, scientific writing, project proposal development, Institutional Review Board (IRB) applications, and clinical trials management. Designed to equip attendees with practical tools, the workshops aimed to enhance research capabilities and foster a strong culture of scientific inquiry.

Fostering Collaboration and Innovation

The event served as a dynamic platform for encouraging interdisciplinary collaboration among participants. By facilitating the exchange of ideas and exploration of synergies, the conference laid a foundation for future partnerships aimed at addressing complex health challenges and driving transformative innovations in healthcare.

Additionally, the first day of the conference, dedicated to Graduate Medical Education trainees, underscored our commitment to nurturing the next generation of researchers. This focus on education reflects our vision to empower young minds with the knowledge and skills necessary to lead future breakthroughs in healthcare and medicine.

Open Access for Global Impact

Publishing these proceedings in an open-access format in DMJ underscores our commitment to disseminating knowledge widely, fostering collaboration, and accelerating innovation. We hope this collection of abstracts will serve as a valuable resource for the global scientific community, inspiring new ideas and driving impactful research projects.

Gratitude and Vision for the Future

We extend our deepest gratitude to all the authors for their valuable contributions, the scientific committee for their meticulous reviews, and the editorial team for their dedication in bringing this publication to fruition.

As we continue this exciting journey, we invite you to join us in shaping the future of healthcare through research and discovery. Together, we can transform lives, advance medical science, and strengthen Dubai Health's position in becoming a global leader in medical research and innovation, thereby shaping the future of healthcare.

Stefan S Du Plessis
Dean, Research and Graduate Studies

Hamda Khansaheb
Director, Research Administration and Support

Oral Presentations

N.B. The abstracts are arranged alphabetically by Title.

RC106

Assessing Telemedicine Utilization and Preparedness in Nursing Practice Within Dubai Health Facilities in the UAE

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Introduction: The integration of telecommunications technologies, including telehealth platforms, mobile apps, and wearable devices, has revolutionized healthcare by enabling remote monitoring of vital signs, providing real-time support, and enhancing patient communication. These innovations facilitate timely interventions, improve care coordination, and increase patient engagement in managing their health. Nurses are increasingly adopting telemedicine (TM) to provide remote care, especially in underserved areas. Telenursing offers significant advantages, such as enhanced access to care, reduced costs through fewer hospital admissions, and improved efficiency via proactive monitoring. In the context of ongoing nursing shortages, TM plays a critical role in enhancing patient care through better teamwork, communication, and technological integration. This study aims to assess the utilization and preparedness of TM in nursing practice within Dubai Health facilities. Specifically, it will evaluate the level of TM adoption among nursing staff, the extent of training and education provided on TM technologies, the infrastructure and resources available for TM implementation, and the awareness, knowledge, attitudes, and skills of nursing staff concerning TM. **Methods**: A cross-sectional observational study was conducted using an online survey to explore TM utilization, preparedness, and the knowledge, attitudes, skills, and awareness of nurses in Dubai's health facilities. A random sample of 434 nurses from hospitals and clinics under Dubai Health were surveyed. Descriptive statistical and regression models' methods were employed to analyze data on TM usage, educational background, training experiences, and responses to the TM Awareness, Knowledge, Attitude, and Skills (AKAS) questionnaire. **Results:** Only 26.7% of respondents reported using TM in their nursing practice. A logistic regression analysis was conducted to identify predictors of nurses' TM utilization. Nurses working in facilities equipped with TM were significantly more likely to incorporate it into their daily practice, with an odds ratio (OR) of 6.52 ($p < .001$). Additionally, nurses who received formal training in TM were 24 times more likely to use it compared to untrained nurses ($OR = 24.29$, $p < .001$). The overall awareness of TM among nurses in the study had a mean score of

55.89 (SD = 26.17). Among the participants, 28.6% scored low, 42.9% scored average, and 28.6% scored high. Nurses who expressed greater interest in TM services demonstrated higher levels of awareness (B = 6.21, $p < 0.001$), with each additional training session attended corresponding to a 4.31-point increase in awareness ($p < 0.001$). Nurses with postgraduate qualifications exhibited 12.06 points higher awareness compared to those with bachelor's degree ($p = 0.017$). TM knowledge assessed participants' understanding of TM, resulting in a mean score of 81.44 (SD = 22.27). Knowledge levels were notably high, with 77.0% of participants scoring high, 14.1% scoring average, and only 9.0% scoring low. Attitudes toward TM had a mean score of 81.42 (SD = 10.27), indicating a predominantly positive outlook. Most participants held favorable attitudes, with 92.4% scoring high, 6.9% scoring average, and only 0.7% scoring low. TM skills, with a mean score of 57.11 (SD = 23.01), indicate a moderate level of proficiency among the nurses. A smaller proportion of participants demonstrated high proficiency (24.4%), while 38.7% scored average, and 36.9% scored low. **Conclusion**: Our study demonstrates a moderate level of awareness and skills in TM among nurses in Dubai health facilities. It also reveals critical gaps and challenges that must be addressed in leveraging TM's potential. By implementing targeted interventions, including education, training, streamlined regulatory frameworks, and infrastructure development, stakeholders can facilitate more equitable and effective integration of TM into routine healthcare practices. The findings will contribute to developing evidence-based strategies to enhance nurses' engagement and proficiency in telemedicine, ultimately improving healthcare accessibility, efficiency, and patient outcomes.

Keywords: telemedicine, AKAS survey tool, information technology, health, nurses

RC58

Automated ECG Report as a Factor in Clinical Decision Pathway for Acute Chest Pain in Emergency Department

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Introduction: In this study, our aim was to classify automated ECG readings for patients with acute chest pain into prevalent categories derived from electrocardiographic-directed management protocols. This study seeks to validate the effectiveness and clinical relevance of this combined approach. **Methods:** Data Partitioning for model training and testing during the 92-day study period, 360 ECGs were strategically sequenced and yielded for the test dataset. This temporal segmentation ensured that the model was trained, validated, and tested on distinct, sequentially collected data sets. **Results:** For the test data, inter-rater reliability was assessed using Light's Kappa and the interclass correlation coefficient (ICC).

The results revealed a Kappa of 0.5, indicating fair to moderate agreement, and an ICC of 0.388, suggesting a moderately strong positive correlation among reviewers (95% CI: 0.333 to 0.445, $p < 0.001$). Model performance evaluation: The model achieved an overall accuracy of 85.9% (95% CI: 0.816-0.895) in predicting the classifications of the ECGs. The precision, recall, and F1 scores for each category—highlighting new arrhythmia ECGs at the lowest with 0.45 and normal ECGs at the highest with 0.93—underscore these outcomes. Analysis of model discrimination capability: Finally, the receiver operating curve (ROC) and area under the curve (AUC) analysis further illustrate the model's discriminative power. **Conclusion:** The result of our study highlights the effectiveness of integrating established ECG analysis algorithms into clinical practice with advanced machine learning techniques that require minimal input. This combination successfully classifies ECGs according to patient-directed management of chest pain. Given that physician interpretation remains the gold standard, future research should focus on assessing the clinical significance of the model's categorizations. Additionally, efforts on evaluating how effectively these frameworks can provide timely and meaningful support for physicians, by ultimately enhancing clinical decision-making and patient care.

Keywords: automated ECG results, AI tools, ED

RC306

Burden and Outcome of Referrals for Murmurs to a Pediatric Cardiology Service at a Tertiary Center in Dubai, UAE

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Introduction: Cardiac murmurs are a common reason for pediatric referrals to cardiology services. In the UAE, the lack of specific referral guidelines for pediatric murmurs contributes to variability in referral practices. This study aims to evaluate the burden and outcomes of referrals for murmurs to a pediatric cardiology service at a tertiary center in Dubai, and focuses on identifying the prevalence of congenital heart disease (CHD) and related demographic and clinical characteristics. **Methods**: A retrospective cross-sectional analysis was conducted on pediatric patients referred for murmur evaluation to the cardiology outpatient clinic at Al Jalila Children's Hospital between January and December 2023. Data on demographics, family history, symptoms, echocardiographic findings, and management strategies were collected and analyzed using descriptive statistics. **Results:** Out of 960 total referrals, 192 (20%) were

referred for murmur evaluation. After excluding incomplete charts, 180 cases were analyzed. Of these, 63 (35%) were diagnosed with CHD, while 117 (65%) had no detectable cardiac pathology. The most common CHD diagnoses were patent foramen ovale (36.6%) and patent ductus arteriosus (17.1%). Only 7 children (11%) were symptomatic at the time of referral. Most patients with CHD (85.7%) were managed conservatively with regular follow-ups, while 6.3% were discharged from cardiology services, and 6.9% required further intervention. **Conclusion:** This study highlights a significant burden of pediatric murmur referrals, with most cases that have benign findings. The results underscore the need for refined referral criteria and training to improve the clinical differentiation between innocent and pathological murmurs, thereby reducing unnecessary referrals and optimizing healthcare resources.

Keywords: murmurs, pediatrics, cardiology

RC103

Comprehensive Quality Improvement Initiatives to Mitigate Blood Culture Contamination Rates in a Pediatric Emergency Department in a Tertiary Care Hospital

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Introduction: Peripheral blood culture contamination (BCC) poses significant challenges in pediatric emergency departments. Blood cultures are a critical diagnostic tool for detecting bacteremia and guiding appropriate antimicrobial therapy. However, the presence of contaminated cultures can lead to false-positive results, further resulting in unnecessary treatments, additional diagnostic procedures, prolonged hospital stays, and increased healthcare costs. Contaminated blood cultures often arise from improper collection techniques or breaches in aseptic procedures. These issues can be exacerbated in the fast-paced environment of emergency departments, where high patient volumes and time pressures are common. Pediatric patients are particularly vulnerable due to their developing immune systems and the potential for rapid deterioration. This study aims to implement a structured quality improvement (QI) program, leveraging targeted interventions and measuring their effectiveness over a period of 16 months to achieve a BCC rate of < 3%. **Methods:** The study employs a prospective, interventional QI design, utilizing three cycles of the Plan-Do-Study-Act (PDSA) methodology. Each cycle involves planning interventions, implementing changes, studying the outcomes, and making necessary adjustments to ensure continuous improvement. Additionally, process mapping was performed to identify value-added and nonvalue-added steps in the blood culture collection process. The specific action in each cycle is as

follows: Cycle 1: Plan: Identify baseline BCC rates, define contamination criteria, and develop initial training programs for staff on proper blood culture collection techniques, including hand hygiene reinforcement. Cycle 2: Do: Implement the training programs, introduce secret shopper audits to assess adherence to protocols, and reduce unnecessary blood culture orders to decrease the burden on nursing staff. Cycle 3: Study: Review data collected from the first two cycles, analyze the impact of interventions on BCC rates, and identify any unintended consequences. Cycle 4: Act: Adjust the interventions based on findings, refine the training and audit processes, and implement any additional measures needed to sustain the reduction in BCC rates. These cycles are to be repeated as necessary, with continuous monitoring and adjustment to ensure the program's success. **Results:** The quality improvement program successfully reduced the BCC) rate in the pediatric emergency department from the baseline of 6.5% to < 2.5%. This reduction was achieved through a combination of targeted interventions, including vendor-provided training, infection control reinforcement, secret shopper audits, and the reduction of unnecessary blood culture orders. Each PDSA cycle led to incremental improvements, with the final cycle achieving sustained results below the 3% target. The balancing measure, which tracked true positive culture rates, showed no significant decline, indicating that patient care was not compromised. **Conclusion:** The study demonstrates that a multidisciplinary approach, structured through PDSA cycles, can effectively reduce BCC rates to < 2.5% in a pediatric emergency department. This reduction enhances diagnostic accuracy, minimizes unnecessary treatments, and reduces healthcare costs. The success of this program provides a replicable model for other institutions looking to improve blood culture quality, contributing to better patient outcomes and healthcare efficiency.

Keywords: contamination, blood culture, asepsis

RC195

CRISPR-edited Neurons Identify Synaptic Disruptions Causal for Neurodevelopmental Disorders in Neurabin+/- Patients with Phenotype Rescue Through mRNA-based Therapy

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Introduction: Genetics plays a significant role into the etiology of neurological disorders, with an estimated heritability ranging from ~40% to 90%. The current genetic diagnostic yield being ~40% for certain neurodevelopmental disorders. Among several candidate genes, genetic mutations impacting Neurabin I (PPP1R9A) are often classified as a variant of uncertain significance (VUS) in several neurodevelopmental problems and are recently reported as a candidate gene underlying the pathophysiological features of autism spectrum disorder (ASD). We have observed multiple cases of neurodevelopmental disorders associated with PPP1R9A VUS. However, functional and molecular roles of this gene in NDD are still inconclusive. Neurabin I, located on chromosome 7q12, is a protein phosphatase-1 regulatory subunit that primarily interacts with F-actin, protein phosphatase 1 (PP1), neurabin-2, and p70-S6K; proteins that are directly involved in neurite formation and establishing synaptic connections. **Methods**: This study aimed to functionally characterize the CRISPR/Cas9 mediated heterozygous knockout (KO) model for the Neurabin I+/- gene in hiPSCs to identify its role in NDD. These KO hiPSCs were then differentiated into cortical neurons (iNeurons) to recapitulate the molecular and physiological phenotypes in vitro, exploring morphogenesis and differentiation patterns in the brain through various phenotypic and molecular assays including morphometric analysis of dendritic spines, immunofluorescence, electrophysiological recordings, long read single-cell RNA sequencing and protein expression of biomarkers. **Results**: The results confirmed disrupted sodium channel activity and firing of action potential in the Neurabin I+/- iPSCs-derived neurons compared to the wildtype. Furthermore, single-cell RNA sequencing confirmed that the mutant excitatory iNeurons exhibited delayed neurogenesis and showed patterns of downregulation of several critical pathways involved in neuronal development and synapse signaling. We further designed a mRNA gene therapy approach using antisense oligonucleotides (ASO) technology to selectively target the mutant allele of the gene and reverse the KO effect to restore phenotypes comparable to the wild type. **Conclusion**: These findings reveal the phenotypic and molecular mechanisms underlying

the pathogenesis of neurodevelopmental disorders associated with PPP1R9A mutations, while also highlighting a potential therapeutic strategy.

Keywords: iPSCs-derived neurons, neurodevelopmental disorders (NDD), electrophysiology, multiomics, long-read single-cell sequencing

RC305

Delivery Mode and Risk of Atopic Dermatitis in Children Under 3 Years: A Retrospective Study in the UAE

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Introduction: Atopic dermatitis (AD) is a chronic skin condition common in children under three. Delivery mode, especially Cesarean section (CS), has emerged as a potential risk factor, as it may disrupt gut microbiota development and delay immune maturation. Early interventions like applying skin emollients or introducing complementary foods between 12 and 16 weeks may reduce AD risk. However, limited research exists on the impact of delivery mode and early interventions on AD prevalence in the UAE. **Methods**: This retrospective study, conducted at Rashid Hospital and Al Jalila Children's Hospital in Dubai from January 2023 to August 2024, investigates the association between delivery mode (CS vs. vaginal) and AD in children under 3 years. Data on delivery mode, gestational age, sex, and use of emollients or early complementary feeding were collected. The target sample size was 400, with a control group of children without AD for comparison. **Results**: Preliminary findings suggest a higher prevalence of AD in children delivered by CS, consistent with studies from Western populations. However, unique environmental and cultural factors in the UAE may also influence AD risk. Ongoing analysis will further explore the role of prematurity, skin care practices, and feeding patterns. **Conclusion**: Understanding the influence of delivery mode on AD is essential for prevention. Early interventions, such as emollient use and probiotics, may help reduce AD risk. This study provides valuable insights for AD prevention in the UAE, potentially informing clinical recommendations. This study addresses a research gap in AD risk factors in the UAE, contributing to prevention strategies focused on delivery mode, skin care, and early feeding.

Keywords: atopic dermatitis, delivery mode, childhood eczema, cesarean section

RC297

Differential Expression of Immune Response and Immune Cell Markers in Breast Cancer Samples Compared to Adjacent Normal Tissue

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Introduction: Immune cell infiltration within the tumor microenvironment (TME) is crucial in cancer progression and therapeutic response. Understanding the immune landscape in the tumor and its surrounding healthy tissues is vital for gaining insights into tumor-immune interactions in breast cancer. Our study aims to assess the proportions and expression of immune cell populations in tumors, tumor-healthy margin junctions, and tumors surrounding normal breast tissues, providing a better understanding of immune involvement in cancer. **Methods:** Tissue samples from seven breast cancer patients' recruited from Dubai Hospital, were collected and embedded into tissue microarray (TMA) blocks. Immunohistochemical (IHC) staining was performed for various immune markers: CD3, CD45, CD44, CD66b, CD55, CD23, CD8a, CD137, CD16, CD4, CD278, CD11, MECA-79, HLA-DR, and TGM2. Staining intensity and immune cell infiltration were quantified and compared across the same patient's biopsy tumors, junctions, and normal tissues. **Results:** Our findings revealed differential expression of immune markers between normal, tumor junction, and cancerous tissues within the same patient's surgical biopsy. For example, CD23 and CD8 expressions were low in cancer cores but moderately expressed at the tumor junction, aligning with previous reports of $CD8^+$ T cells' anti-tumorigenic role. In contrast, CD44, associated with cancer stemness and epithelial-mesenchymal transition (EMT), was highly expressed in cancerous and stromal tissues. CD278, an immunological checkpoint, was upregulated in cancer samples but not at the tumor junction. Additionally, CD11, a marker for tumor-infiltrating dendritic cells, showed high expression in cancer cores but was reduced in the tumor junction. **Conclusion:** This study reveals the intricate and dynamic interplay of immune cells in breast cancer progression specific within the cancer microenvironments that can explain patients' heterogenicity clinically and in terms of response to therapy.

Keywords: breast cancer, immune cells, tumor microenvironment

RC317

The Dubai Diabetes Center Experience

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Background: The Dubai Diabetes Center (DDC), established in 2009, has evolved as a leading facility for comprehensive diabetes management, research, and education in the UAE. Initially affiliated with the Joslin Diabetes Center, DDC transitioned to an independent entity, maintaining the highest standards of care as set by the American Diabetes Association (ADA). DDC's focus includes patient empowerment through education, a multidisciplinary team approach, continuity of care, consultant-led clinics, and an appointment-based system. DDC has implemented innovative approaches in patient care and research. Recent studies have demonstrated advancements in Type 2 Diabetes (T2D) subtyping using genomic biomarkers and artificial intelligence, as well as interventions using GLP-1 receptor agonists and telemonitoring to improve metabolic outcomes. Notable achievements include multiple international certifications and recognitions for excellence in patient-centered care and digital health integration. Future directions emphasize the need for personalized care strategies, subtype stability, and innovative therapeutic approaches to optimize diabetes management.

Keywords: diabetes, UAE, patient-centered care

RC143

Effective Delayed Use of Uridine Triacetate Rescue for Severe Capecitabine-associated Enterocolitis and Identification of Novel *DPYD* and *TCF4* gene Deletion in a Young Patient with Rectal Cancer

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Background: Approximately 1300 patients per year die from complications of chemotherapeutic agents, such as 5-fluorouracil (5FU) and capecitabine, which are used to treat gastrointestinal cancers. Genetic predisposition, specifically mutations in the *dihydropyrimidine dehydrogenase (DPYD)* gene, is a known factor contributing to drug toxicity, yet mutations outside common *DPYD* polymorphisms remain underreported. The aim of this study was to investigate genetic factors contributing to life-threatening enterocolitis in a young patient receiving capecitabine chemotherapy and to explore potential novel mutations in the *DPYD* gene and colorectal cancer predisposition genes. **Methods:** Long-read whole genome sequencing was utilized to identify mutations in *DPYD* and other genes related to cancer susceptibility. Genomic DNA was analyzed using Oxford Nanopore Promethion 24 based ultra-long read sequencing. Data analysis incorporated variant prioritization tools, including the Horizon pipeline from Genomearc. **Results**: A 32-year-old female of Lebanese descent with rectal cancer (T4aN1), treated with radiotherapy followed by capecitabine, developed severe diarrhea after 7 days, followed by ICU admission due to pan-colitis. Capecitabine was discontinued prior to admission. Emergency uridine triacetate (VISTOGARD) was imported and administered 6 days after ICU admission, resulting in rapid neutropenia and symptom improvement. The whole genome sequencing identified a novel heterozygous 5871 bp deletion in the *DPYD* gene. No known DPYD mutations associated with fluorouracil toxicity were detected. Additionally, a novel 39 bp indel in the *TCF4* gene, a tumor suppressor gene, was identified, suggesting an association with colorectal cancer susceptibility. **Conclusion:** A novel DPYD mutation likely contributed to fluorouracil toxicity in this patient. This case demonstrates the importance of *DPYD* gene sequencing prior to chemotherapy initiation. Alternatively, dosage adjustments and close monitoring should be considered for all patients. Uridine triacetate remains an effective treatment, even when administered late. Genome sequencing can offer insights into drug toxicity and early-onset cancer etiology.

Keywords: DPYD mutation, fluorouracil toxicity, whole genome sequencing, colorectal cancer

RC168

Evaluating the Potential of Virtual Reality in Alleviating Pain and Anxiety Among Thalassemia Patients During Intravenous Cannulation: An Interventional Cross-over Study, 2023-2024

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Introduction: β-thalassemia affects 8.5% of the population in the UAE. Virtual reality's (VR) distraction-based nature has the potential to offer relief to patients undergoing painful procedures. VR has demonstrated effectiveness in reducing pain and anxiety in other patient populations, warranting exploration within the thalassemia context. **Methods:** An interventional cross-over study on the effects of VR on thalassemic patients' pain and anxiety during intravenous cannulations was conducted between May and September 2024. Patients aged >7 years and diagnosed with thalassemia were included in the study. Exclusion criteria involved pregnancy, being under legal protection, and other specific disorders such as epilepsy and autism. Patients benefited from the standard of care on their first visit and utilized VR for the two subsequent visits. The interval between visits was 2-4 weeks, in line with clinical practice. The VR session lasted for 20 minutes, during which the cannulation was completed. All participants completed questionnaires after each visit, using the Visual Analogue Scale to assess pain and anxiety as primary objectives, while boredom and fatigue were assessed as secondary objectives. Other secondary objectives included patient and staff satisfaction. **Results:** The data collection cutoff for the presented results was September 2024. A total of 115 participants were enrolled in the study, with 89 having completed at least one VR visit, and 56 having completed both. So far, a mean reduction in reported pain by 21.5% and anxiety by 24.8% were observed. Boredom and fatigue levels decreased by 28.5% and 37.7%, respectively. 91.2% of patients were either satisfied or very satisfied with this solution. **Conclusion**: The study explored the benefits of VR immersion in reducing pain, anxiety, and enhancing satisfaction for patients and medical staff. Early results suggest that VR is effective in reducing pain and anxiety, while improving overall satisfaction during cannulation.

Keywords: pain management, virtual reality (VR), digital health, innovation

RC210

From Acceptance to Adjustment: Unlocking the Empathic Trajectories of Medical Students Using Critical Discursive Analysis

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Background: Empathy is a key prosocial behavior that involves recognizing and sharing another's emotions to reduce suffering and improve patient outcomes. However, medical education often struggles to maintain empathetic behaviors among medical students despite empathy-cultivating curricula. Research reveals complex patterns in empathy development among medical students, with varied understandings across academic years. This indicates that empathy is shaped by cognitive factors and students' perceptions of control. This research explores how empathy is enacted and perceived during training by undergraduate medical students. **Methods:** This qualitative study was conducted on medical students from the Royal College of Surgeons in Ireland Medical University Bahrain (RCSI-MUB) and the University of Sharjah (UoS) in the UAE by focused group discussions (FGDs). A structured questionnaire was developed based on the perceived behavioral construct (PBC) of the theory of planned behavior (TPB). Data were analyzed using critical discursive psychology (CDP) to identify students' use of language and shifting understandings about empathy. **Results:** Our study included 140 participants, 68 from institution RCSI-MUB and 72 from UoS, with a gender distribution of 89 females and 51 males. The students' breakdown across the years was relatively uniform, with 22-25 students per academic year. From 24 FGDs we identified two main 'repertoires' acceptance and adjustment, which students used to describe or make sense of their experiences. Elements of 'false sense of control' and 'going with the flow' showed an acceptance mood highlighting passive agency. While 'recalibration of motivation' and 'cognitive restructuring' reflected adjustment with an active agency. Bringing these together, we identified five main character roles: confident beginner, passive observer, reflective learner, problem solver, and autonomous, which medical students adopt while justifying their intentional choices. **Conclusion:** Our findings highlight substantial insights about medical students' perceptions of empathy enactment, ranging from acceptance to adjustment. This signals their ability to engage in clinical practices, perceive their roles as future doctors, and express their emotions. Medical educators should guide students in moving from passive acceptance to active adjustment by fostering emotional awareness and encouraging alternative interpretations that support the development of empathetic professionals.

Keywords: empathy, medical students, focus group discussions, critical discursive psychology, repertoires, character tropes

RC78

Impact of an Integrated Research Module on Medical Student Publications and Research Engagement: A Pilot Study in the Middle East

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Introduction: The research module at the College of Medicine, Mohammed Bin Rashid University of Medicine and Health Sciences (MBRU) is a mandatory 3-years integrated course. Upon completing those courses, the student would have developed the competencies needed for the third program learning outcome: “practicing evidence-based medicine and engaging in scholarship and generation of new knowledge.” We aim to identify the impact of student research projects on developing interest in pursuing medical research and promoting evidence-based medical practice. Additionally, this study seeks to achieve two objectives: first, to develop a continuously updated registry of student research publications; and second, to analyze the characteristics, quality, and types of publications produced by medical students and graduates using the developed registry. **Methods:** All publications by MBBS students who completed the research module between January 2017–December 2023 were included in the Excel database. Twenty-six variables were recorded related to each article, including study design, authorship, publication type, journal impact factor, and PubMed/ORCHID. **Results:** The results section presents data from the first cohort of students at MBRU consisting of 49 students. Of these, 37 (75.5%) published at least one research article following completion of the integrated research methods course. The median number of publications amongst those who published at least one paper was two. A total of 113 unique research articles were obtained. Amongst the published articles, editorials, letters to the editor, and commentaries accounted for 24% (28/113), while review articles constituted 21% (24/113). Additionally, 45% of the articles were published in Q1-indexed journals. **Conclusion:** Our study is the first of its kind in the Middle East and serves as a pilot project in developing a unique and sustainable registry of student research publications, capturing multiple variables. The findings suggest that early involvement in research during undergraduate medical education fosters a greater interest in pursuing research.

Keywords: publication registry, evidence-based practice, undergraduate medical research, research module, medical education

RC271

Impact of Obesity on Neutrophil Function and Phenotype in Severe Asthma

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Background: Obesity is one of the main risk factors associated with poor asthma outcomes. Obese asthma is known for the presence of increased airway neutrophils. Yet the exact link between obesity and neutrophilic inflammation remains unclear. Neutrophils, a key component in inflammatory responses, play a significant role in the pathophysiology of severe asthma. Our study aims to investigate the effect of obesity on neutrophil behavior. **Methods:** Neutrophils isolated from healthy donors and asthmatic patients were exposed to obese (ObACM) and lean adipocyte-conditioned media (LACM). Migration was measured at 4 and 24 hr, and cell viability was assessed at 24 and 48 hr. Sputum samples from obese and lean asthmatic patients were immunostained for neutrophil markers (CD15, CD95, and CD62L). **Results:** Significantly higher migration of healthy neutrophils toward LACM after 24 hr was observed compared to ObACM and control conditions. Asthmatic neutrophils showed reduced migratory responses compared to healthy neutrophils. The viability of healthy neutrophils, unlike asthmatic neutrophils, showed an enhanced survival rate in ObACM after 48 hr. Immunofluorescence staining showed a predominance of pro-inflammatory N1 neutrophils (CD15+CD95high CD62L+) in obese severe asthmatic patients, while lean asthmatic patients had a higher proportion of anti-inflammatory N2 neutrophils (CD15+CD95low CD62L-). **Conclusion:** This study reveals that while neutrophils migrate more effectively toward LACM, they show an enhanced survival rate in ObACM. These findings are reflected in the phenotypic shift of N1 neutrophils in obese asthmatic patients from N2 in lean asthmatic patients. Understanding these differential responses could provide insight into the role of the obese inflammatory environment in neutrophilic inflammation in obese severe asthmatic patients.

Keywords: asthma, obesity, obese asthma, neutrophils, N1 and N2

RC242

The Impact of Spacer Uses in Asthmatic Patients on Symptom Relief and Reducing Adverse Effects: A Cross-sectional Study

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Background: Metered-dose inhalers (MDIs) with spacers have been shown to provide therapeutic responses comparable to nebulizers in both adults and children. Studies indicate that MDI-spacers are increasingly effective in asthma control and reducing hospital stays, with fewer non-pulmonary side effects and lower costs. This study evaluates the correlation between spacer use and the incidence of adverse effects such as oral thrush and hoarseness of voice and its impact on symptom control in asthmatic patients. A unique feature of this research is its contribution of real-world data from a Middle Eastern setting, where asthma is common but use of inhalers with spacers is less studied. **Methods:** A cross-sectional study was conducted in the outpatient Pulmonology Department at King's College Hospital, Dubai. Patients over 18 years old with a current asthma diagnosis were included. A self-administered questionnaire assessed the effect of spacer use on symptom control and side effects. Chi-square tests were used to analyze associations between spacer use and the outcomes. **Results:** Of the 107 participants, 53% (n=57) reported using spacers. Among spacer users, 10% (n=6) reported oral thrush, 14% (n=8) experienced hoarseness of voice, and 98% (n=56) reported improved symptom control. Comparatively, in nonspacer users, 26% (n=13) reported thrush, 34% (n=17) had hoarseness, and 54% (n=27) experienced symptom control improvement. Statistical analysis demonstrated a significant correlation between spacer use and reduced incidence of thrush (p=0.024), hoarseness (p=0.009), and improved symptom control (p<0.001). **Conclusion**: Spacer use in asthmatic patients significantly reduces the incidence of adverse effects like oral thrush and hoarseness of voice, while improving overall symptom control. These findings support the clinical benefit of recommending spacer devices alongside MDIs to optimize asthma management.

Keywords: spacer use, asthma management, symptom control, adverse effects, inhaler therapy

RC203

An Integrated Multimodal-based CAD System for Breast Cancer Diagnosis

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Introduction: Breast cancer continues to be a prominent cause of mortality for women globally. Early detection is pivotal in reducing death rates, leading to the emergence of computer-aided diagnosis (CAD) systems for breast cancer detection. Despite advancements in CAD systems, most existing models primarily analyze mammograms of the affected breast, posing limitations on diagnostic accuracy. This study proposes an integrated multimodal CAD system utilizing mammograms from both breasts, including craniocaudal (CC) and mediolateral oblique (MLO) views, along with patient-specific statistical information (such as medical history, breast density, and age) to enhance breast tumor classification accuracy. **Methods:** We assembled a dataset comprising mammograms and patient statistical data from 256 individuals at King Fahad University Hospital in Khobar, Saudi Arabia. The CAD system employs two methods: the first utilizes convolutional neural networks (CNN) for image-based features in conjunction with machine learning (ML) models (such as Decision Trees, Random Forest, and others) for statistical data classification, employing a soft voting approach. The second method integrates image and statistical features for classification. **Results:** The proposed system demonstrated enhanced classification accuracy, notably when utilizing mammograms from both breasts. The soft voting approach achieved 93% accuracy, while the challenging voting approach reached 97%. Integrating mammogram data with patient statistical information consistently outperformed models using only one data type. **Conclusion**: This study underscores the significance of harnessing multimodal data in CAD systems to augment diagnostic accuracy for breast cancer. By integrating mammogram images with patient-specific information, the proposed system can more effectively differentiate between benign, malignant, and normal tissues, providing a robust tool for early breast cancer detection. Subsequent efforts will focus on expanding the dataset and refining the model for broader clinical applications.

Keywords: breast cancer, computer aided diagnosis systems, machine learning

RC100

Investigating the Odontogenic Potential of Human Induced Pluripotent Stem Cells Derived Mesenchymal Stem Cells in Comparison to Stem Cells of the Apical Papilla

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Introduction: Over the past two decades, numerous researchers have focused on identifying stem cell populations capable of regenerating the pulp-dentin complex. Most research focused on dental tissue-derived mesenchymal stem cells (dMSC), which have multipotent differentiation potential and can be isolated from various dental tissues. However, these dMSCs have limitations, leading researchers to explore alternative cell sources that offer greater scalability and sustained regenerative potential while maintaining the unique expression and functional profile of dMSCs. This study aimed to test the odontogenic properties of MSC derived from human induced pluripotent stem cells (MSC-hiPSC) as a potential alternative to dMSC. **Methods:** Patient-specific hiPSCs were differentiated to generate mesenchymal progenitors via a cranial neural crest intermediate, replicating embryonic tooth development. The expression profile of the hiPSC-MSC was assessed and compared to SCAP through a panel of cell surface markers: CD90, CD73, CD105, CD13, CD14, CD271, CD57, and CD146, using flow cytometry and the differentiation potential through osteogenic, chondrogenic, and adipogenic differentiation assays. Alizarin red (AR) staining, alkaline phosphatase (ALP) quantification, and proteomics analysis were assessed to determine and compare both cell types' odontogenic differentiation (OD) potential. **Results:** The hiPSC-MSC demonstrated CD90+, CD73+, CD105+, CD13+, CD14-, CD271-, CD57- and CD146+and their trilineage differentiation capabilities were comparable to SCAP. Upon OD, hiPSC-MSC exhibited significant mineralization, visualized and quantified using AR stain at 7 and 14 days, comparable to SCAP. ALP activity of the OD cells significantly increased on days 7 and 14 in the hiPSC-MSC, compared to SCAP. The proteomics analysis of OD cells revealed enrichment of the common pathways responsible for OD: WNT, BMP, MAPK, and PI3K pathways in hiPSC-MSC, while only the MAPK and P13K pathways were enriched in the SCAP cells. **Conclusion:** The expression profiles of both cell types were similar; however, for the OD

of iPSC-MSCs, the biomineralization marker ALP was significantly higher, and more OD pathways were enriched.

Keywords: human induced pluripotent stem cells (hiPSCs), stem cells of the apical papilla (SCAP), mesenchymal stem cells (MSCs), odontogenic differentiation

RC147

Multiomics Analysis of Peptide-functionalized Zinc Oxide Nanoparticles for the Selective Targeting of Breast Cancer Expressing Placenta-specific Protein 1

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Background: At present, breast cancer (BC) outnumbers lung cancer in terms of global incidence and is the primary cause of cancer-related mortality among women. The only subtype of BC for which targeted therapies are not available is triple-negative breast cancer (TNBC), which comprises 15–20% of incident BC. Conventional medicines to treat TNBC have limited effect resulting in low survival. Nanotechnology is currently being extensively utilized in oncotherapy research. The potential therapeutic applications of nanoparticles (NP), such as in cancer treatment, are attracting significant interest due to their drug-delivering properties. PLAC1 is a protein that is specifically found in the trophoblasts of mammals. PLAC1 exhibits abnormal expression in several types of human malignancies, where it plays a role in the movement, migration, and infiltration of tumor cells. **Methods:** In our recent study we analyzed the toxicity of MDA MB 231 cell line after treating ZnO Np conjugated with PLAC1. Our results indicated that NPs with peptide coupling were more selectively toxic to PLAC-1-expressing MDA-MB 231 cells than those without. Herein we gained insights into the mechanism of the peptide coupling- ZnO NPs by comparing the effect of the proteomic and metabolic profile of MDA-MB 231 when treated with peptide coupling-ZnO NPs with other control treatments with the peptide alone or ZnO NPs without the peptide. **Results:** In

total, we have identified 1901 proteins and 196 endogenous metabolites as a principal component analysis separated the PTX-PLGA NPs from both PLGA NPs and free drug (PTX). In comparative proteomics, a total of 39 proteins and 48 metabolites were differentially regulated with different treatments. **Conclusion:** The multiomics data, here, reiterates the peptide-NPs mode of action on triple negative BC cells and provides fresh perspectives on ZnO NPs utility and opens new research directions.

Keywords: breast cancer, nanoparticles, proteomics, metabolomics, therapy

RC119

No-shows at Primary Healthcare Clinics Mammography Screening Appointments at Dubai

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Background: Breast cancer is the most common cancer among females and is a health concern in the UAE (UAE). It is characterized by an early onset and significant contributions to female cancer cases and deaths. Despite its importance, low rates of mammogram participation pose challenges for early detection and effective treatment. This study explores the barriers influencing mammogram attendance among women in the UAE. **Methods:** Conducted through 2022, this cross-sectional study surveyed 461 women referred for mammograms but did not attend appointments across 12 primary healthcare centers in the Dubai Health Authority. The objective was to identify factors affecting mammography attendance, considering system-related factors, procedure-related factors, and factors related to women's emotional and practical behavior. **Results:** Emotional factors such as procedure-related pain, fear, or shyness showed no significant association with mammogram attendance across all age groups (p-value < 0.001). Conversely, practical constraints, including being too busy, hesitancy to request time off work, and weekday morning unavailability, significantly influenced attendance, particularly among women aged 40-50 years (p-value < 0.001). Age did not significantly impact appointment-related issues like forgetfulness, challenges in rescheduling, or the absence of reminders (p-value = 0.5). Additionally, location preference for mammogram screenings was not influenced by age (p-value = 0.017). **Conclusion:** This study concludes that emotional factors are not key determinants for missing mammogram appointments in the UAE. To address these findings, recommendations include offering extended hours, introducing a dedicated mammogram off day, emphasizing practical issues in awareness campaigns to working women, implementing virtual pre-screening consultations before appointments, providing information in multiple

languages to cover the diversity of the population in Dubai, and leveraging AI tracking to minimize no-shows, especially in women aged between 40 and 50. These measures aim to enhance mammogram attendance, facilitating earlier breast cancer detection and improving treatment outcomes in the UAE.

Keywords: breast cancer, mammography, screening, prevention, no shows

RC46

Oral Health Status of Dubai Preschool Children in Relation to their Brushing Habits, Parental Knowledge and Attitude: The Role of Pediatrician on Oral Health

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Background: In the UAE, early childhood caries (ECC) is an epidemic with an alarming prevalence. This study aimed to assess the relationship between the children's oral health and their brushing practices and to evaluate parental dental health knowledge and attitude. The socioeconomic consequences and potential comorbidities of ECC manifest in increased general anesthesia treatment costs and missing school time. ECC is a preventable disease or can be intercepted in its early stages by visiting the antenatal and pediatrician's clinics, with subsequent coordination and collaboration with dental colleagues. **Methods:** A cross-sectional study of parents and their preschool children was conducted. Standard clinical examinations were used to assess caries and gingival health. A structured questionnaire collected information on demographics, general health, oral health practices, and parental knowledge and attitude. Nonparametric tests (Mann-Whitney U and Kruskal-Wallis) were used for statistical analyses ($p < 0.05$ considered significant). **Results:** 145 children [51% males, mean age 4.06 years (±0.88)] participated. A total of 37.2% of parents rated their children's oral health as 'very good.' The most common reason for dental visits was "dental problems" (54.4%). The average score of oral health knowledge was 64.3%, with educated parents having better oral health knowledge ($p<0.001$). Most of the parents were aware that their child needed to visit the dentist in every 6 months. Further, 72% believed the dentist to be the only one who can prevent tooth cavities. The mean gingival index was 0.19, indicating mild gingivitis. Most of the children had extensive caries (ICDAS code 5 and 6). Preformed metal crowns (PMCs) and extractions were the most performed treatments. **Conclusion:** Most children had extensive ECC, with PMCs and extractions being the most performed treatments. Parents, medical health professionals, and dentists should work together to improve oral health awareness and foster positive attitudes about dental care.

Keywords: early childhood caries (ECC), parental knowledge, pediatrician, prevention, consequences

RC243

RARA Super-enhancer as a Critical Regulator of Retinoic Acid Differentiation in Neuroblastoma

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Introduction: Neuroblastoma, the most common extracranial tumor in children, arises from a differentiation arrest of sympathoadrenal progenitor cells. High-risk neuroblastomas are particularly difficult to treat, with survival rates below 50%. Retinoic acid (ATRA), a vitamin A derivative, is used in maintenance therapy for neuroblastoma patients; however, not all patients respond to treatment. Thus, understanding the mechanisms of neuroblastoma differentiation is crucial for improving therapeutic approaches. Neuroblastoma cells are categorized into adrenergic (ADRN) and mesenchymal (MES) subtypes based on their distinct super-enhancer landscapes. We hypothesize that differences in the super-enhancer landscape drive differential responses to ATRA, with specific super-enhancers acting as critical regulators of differentiation and therapeutic efficacy. **Methods**: Three neuroblastoma cell lines—ADRN (both MYCN-amplified and nonamplified) and MES cells—were treated with ATRA for 7–10 days. H3K27ac ChIP-seq and RNA-seq were used to compare the super-enhancer landscapes in cells that differentiated in response to ATRA versus those that did not, identifying differentiation-associated super-enhancers. CRISPR interference (CRISPRi) was used to silence the RARA super-enhancer, and qPCR was performed to assess the expression of target genes as well as proliferation and differentiation markers. **Results**: Upon ATRA treatment, ADRN cells differentiated into neurons while MES cells remained undifferentiated. Comprehensive bioinformatic analysis revealed specific super-enhancers and core regulatory transcription factors that mediate a positive response to ATRA. Silencing the RARA super-enhancer using dCAS9-KRAB attenuated the

differentiation phenotype and reduced the expression of RARA and differentiation markers. **Conclusion**: This study identifies the RARA super-enhancer as a key regulator of retinoic acid-mediated differentiation in neuroblastoma. These findings provide insights into the variable responses of neuroblastoma patients to retinoic acid therapy and may inform the development of more effective differentiation therapies.

Keywords: neuroblastoma, differentiation, retinoic acid, super-enhancer

RC83

Success Rate and Pregnancy Outcome of External Cephalic Version in Dubai and Latifa Hospital: A Retrospective Descriptive Study

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Introduction: Breech presentation is more common in preterm deliveries and nulliparous women, complicating 3-4% of term births. The number of women giving birth to breech babies, vaginally, have decreased significantly throughout the years and after the term breech trial was published. Planned vaginal breech deliveries are rare and are not recommended in many countries, including the UAE, and efforts to avoid breech presentation during delivery are crucial. The paucity of the data about success of ECV in the UAE makes this study clinically relevant. **Methods**: This study is a retrospective descriptive study conducted in Latifa Hospital and Dubai Hospital in Dubai, UAE. It included all pregnant women with term breech presentation who underwent trial of ECV in both hospitals during 2018-2023. Their data were collected through their electronic medical records, and after obtaining ethical approval the data were then analyzed using SPSS program. **Results**: The total number of patients included were 83. The success rate of ECV in our study was 57.8%. Twenty-seven patients out of 83 (32%) that were included in the study had vaginal delivery due to the ECV. Sixty-two (56%) patients with successful ECV had a vaginal delivery while 21 (44%) patients had an emergency cesarean despite a successful ECV. All the patients with failed ECV had a cesarean delivery. Successful ECV was noted in multi para, women of older age groups, especially after the age of 30 years. The mean age of successful ECV was higher than failed ECV. More than 50% of our patients were obese. **Conclusion**: ECV is a recommended procedure to decrease the ever-increasing cesarean section rates in modern obstetrics. More and more clinicians need to be trained in successfully carrying out ECV.

Keywords: breech presentation, ECV, cesarean section

RC267

Targeting PAR2-mediated Inflammation in Osteoarthritis: A Comprehensive In vitro Evaluation of Oleocanthal's Potential as a Functional Food Intervention for Chondrocyte Protection and Anti-Inflammatory Effects

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Background: Osteoarthritis (OA) is a degenerative joint disease characterized by chronic inflammation and cartilage degradation, leading to joint dysfunction. Oleocanthal (OC), a phenolic compound from extra virgin olive oil, has anti-inflammatory effects comparable to NSAIDs. This study investigates the effect of OC on the protease-activated receptor-2 (PAR-2) mediated inflammatory pathway in OA, exploring its potential as a functional food-based therapeutic intervention. **Methods**: Human bone marrow-derived mesenchymal stem cells (BMSCs) were differentiated into chondrocytes to model cartilage tissue. An inflammatory OA-like environment was induced using lipopolysaccharide (LPS), and chondrocytes were treated with varying concentrations of OC. Inflammatory markers, catabolic enzymes, and mitochondrial function were assessed. Mitochondrial membrane potential ($\Delta\Psi m$) was measured via Rhodamine 123 staining, protein expression by Western blotting, and gene expression of cytokines and catabolic enzymes by RT-PCR. Flow cytometry assessed cell viability and apoptosis. **Results**: OC significantly downregulated PAR-2 expression, reducing pro-inflammatory cytokines (TNF-α, IL-1β, MCP-1) and catabolic markers (SOX4, ADAMTS5) in a dose-dependent manner. OC preserved mitochondrial membrane potential ($\Delta\Psi m$) in inflamed chondrocytes, indicating protection of bioenergetic function. Additionally, OC modulated the RANKL/RANK pathway, suggesting broader therapeutic potential. **Conclusion**: This study reveals that OC modulates the PAR-2 inflammatory pathway and preserves cartilage integrity in OA, highlighting its potential as a multifunctional therapeutic agent. Its preservation of mitochondrial function and modulation of the RANKL/RANK pathway further supports its promise for managing OA. Further research is required to explore OC's long-term efficacy in musculoskeletal disorders.

Keywords: osteoarthritis, protease-activated receptor 2 (PAR-2), oleocanthal, anti-inflammatory agents, chondrocytes, in vitro techniques, cartilage, signal transduction, phenols, inflammation mediators, extracellular matrix, mitochondrial membrane potential

RC178

Toward Predictable Craniofacial Tissues Regeneration: Updates from HBMCDM's Stem Cell and Tissue Engineering Research Group

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Background: Regenerative procedures aim to regain the structures and functions of tissues that have been lost due to disease or trauma. However, such procedures require pre-clinical validation through basic science and translation research. Such studies aim to use advanced experimental techniques to test different types of stem cells, scaffolds, bioactive molecules, biomaterials, and pharmacological agents for their clinical use. This talk will discuss these studies and will provide an update on the concept of craniofacial regeneration, its current limitations, and possible solutions. Moreover, the speaker will present the recent advances in basic science and translation research from the HBMCDM's stem cells and tissue engineering research group such as 1) alternative sources of dental stem cells, 2) advanced experimental techniques, 3) potential biomaterials for pulp regeneration, and 4) 3D tissue engineering models.
Keywords: stem cells, tissue engineering, dental, craniofacial

Poster Presentations

RC193

Acute Hemorrhagic Encephalomyelitis due to *Neisseria meningitidis*: A Case Report

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Introduction: Acute hemorrhagic encephalomyelitis (AHEM), also known as Hurst disease, is a rare and aggressive demyelinating condition of the central nervous system, characterized by rapid onset and

severe inflammation of the white matter. It represents the most severe form of acute disseminated encephalomyelitis (ADEM), often associated with a post-infectious autoimmune response triggered by viral or bacterial infections. AHEM has a notoriously poor prognosis, with high mortality and morbidity rates, underscoring the importance of early recognition and intervention. **Case Report:** We report the case of a 49-year-old male who presented to the hospital with clinical signs of septic shock, later attributed to *Neisseria meningitidis*. The patient was subsequently diagnosed with meningococcal meningitis, a serious bacterial infection of the meninges. Despite appropriate antimicrobial therapy, the patient's condition deteriorated, leading to the development of AHEM, characterized by acute neurological decline, altered mental status, and hemorrhagic lesions on neuroimaging. Aggressive treatment, including high-dose corticosteroids and supportive care, was initiated, which resulted in gradual neurological improvement. **Conclusion:** This case highlights the potential for AHEM to complicate the course of severe infections like meningococcal meningitis. While AHEM carries a grim prognosis, early diagnosis and prompt treatment can improve outcomes. In this case, timely intervention led to a favorable recovery, emphasizing the need for vigilance in patients presenting with severe CNS infections and sudden neurological deterioration.
Keywords: acute disseminated encephalomyelitis, acute hemorrhagic encephalomyelitis, *Neisseria meningitidis*, neuroimaging, magnetic resonance imaging

RC310

Acute Type 1 Leprosy Reaction Mimicking Facial Cellulitis: A Diagnostic Challenge

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Background: Leprosy (Hansen's disease) is a chronic infection caused by *Mycobacterium leprae*, affecting the skin and peripheral nerves. Although it usually progresses slowly, leprosy reactions can present acutely, mimicking other conditions and complicating diagnosis. This case report discusses such a presentation, initially mistaken for cellulitis. **Case Report**: A 22-year-old Indian male presented with a 10-day history of fever and facial rash. Treated initially for cellulitis with flucloxacillin, his symptoms persisted. Upon further questioning, he revealed a 2-year history of asymptomatic, ring-shaped lesions on his chest and limbs. Examination revealed erythematous plaques with necrotic crusts on his face, annular plaques on his trunk and limbs, periorbital edema, earlobe infiltration, and bilateral ulnar nerve thickening with sensory loss. Nasal smears tested positive for lepra bacilli on Ziehl-Neelsen staining. Skin biopsies showed non-caseating granulomas with foamy macrophages, a well-defined Grenz zone,

and dermal nerve involvement, confirming borderline lepromatous leprosy with a type 1 reaction. The patient was started on the WHO-recommended multibacillary regimen (rifampicin, dapsone, clofazimine) and prednisolone (40 mg/day) to control the reaction. His condition improved within 2 weeks, and he was discharged with a continuation regimen. **Conclusion:** Leprosy can remain undiagnosed for years, leading to severe complications. This case emphasizes the need for clinical vigilance in patients with chronic, unexplained skin lesions and nerve involvement, particularly in endemic areas. Early recognition and prompt treatment can prevent irreversible damage.

Keywords: leprosy, Hansens disease, leprosy reaction

RC189

Adult Cerebellar Hemangioblastoma with Foramen Magnum Extension: First Ever Foramen-magnum Extension Case Reported in the Literature

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Introduction: Cerebellar hemangioblastomas are rare, benign, and highly vascular tumors predominantly affecting the posterior fossa. Misdiagnosis can result in delayed life-saving interventions, particularly when the clinical presentation mimics more common conditions, such as vertigo. This case report discusses a patient who was initially misdiagnosed in another hospital with vertigo before the discovery of a cerebellar hemangioblastoma extending into the foramen magnum in our hospital. **Case Presentation:** A 36-year-old male presented with persistent dizziness and imbalance that had worsened over 10 days. He had been previously evaluated at another hospital and diagnosed with vertigo, receiving antihistamines before being discharged. Upon presentation to our hospital, neurological examination indicated a cerebellar disorder. Imaging, including a computed tomography (CT) scan and magnetic resonance imaging (MRI), revealed a large posterior fossa mass with solid and cystic components extending into the foramen magnum. A right suboccipital craniotomy was performed to completely resect the tumor. The pathology confirmed cerebellar hemangioblastoma. Postoperation, the patient recovered without complications; and follow-up imaging confirmed total tumor excision. **Conclusion:** Cerebellar hemangioblastomas account for a small percentage of brain tumors and are frequently misdiagnosed due to their overlapping symptoms with conditions like vertigo. This case highlights the importance of considering rare intracranial pathologies in patients with unremitting dizziness and ensuring comprehensive neurological evaluation and imaging.

The extension of the tumor into the foramen magnum necessitated careful surgical planning to minimize neurovascular compromise and achieve a complete resection. Prompt diagnosis and surgical intervention in this case of cerebellar hemangioblastoma were life saving. Awareness of the potential for misdiagnosis in patients presenting with vertigo-like symptoms is crucial. Early recognition of such tumors, especially with foramen magnum involvement, can prevent delayed treatment and improve patient outcomes. Further documentation of such cases is essential to guide surgical management and improve diagnostic protocols.

Keywords: cerebellar hemangioblastoma, vertigo, foramen magnum extension, retromastoid approach, suboccipital approach

RC284

Advancing Pediatric Tympanoplasty: Cartilage Graft Efficacy and Outcomes – A Retrospective Cohort Study

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Background: Pediatric tympanoplasty is a relatively common procedure, with a reported success rate of 35% to 94%. Generally, the efficacy of this surgery in children is thought to be lower compared to adults, due to recurrent upper respiratory tract infections, persistent otitis media, and ongoing Eustachian tube dysfunction. Various types of grafts are used for the repair, with temporalis muscle fascia being the most common. Limited literature exists regarding the efficacy of using cartilage grafts. This study aims to assess the efficacy of cartilage tympanoplasty, compared to other grafting materials used, and determine the hearing outcome. **Methods:** This is a retrospective cohort study involving all children who underwent tympanoplasty by the senior author from 2017 to 2023 and had their hearing assessed. **Results:** We reviewed 39 patients, with a mean age of 7.2 years (range 2 – 14.7 years); 82.05% were older than 5 years; 51.28% were females. The patients underwent 49 procedures, including myringoplasty (26.53%), tympanoplasty (30.61%), and tympanomastoidectomy (42.86%). The most commonly used graft was cartilage in 51% (25/49), followed by Tutoplast fascia in 20.4% (10/49), Biodesign otologic repair graft in 14.3% (7/49), Epidisc in 6.1% (3/49), and fat in 4.1% (2/49). Tympanoplasty was successful in 79.6%. Failure to heal was associated with the occurrence of infection, cholesteatoma, and recurrence of retraction. The cartilage success rate was 76% (19/25) with an improved hearing level of 54.55% (18/33), compared to the success rate of 86.4% of the other materials (19/22) with an improved hearing level of 30.3% (10/33).

Conclusion: Cartilage grafts are effective in pediatric tympanoplasty, with good outcomes of healing and hearing. However, the slightly higher success rate of other graft materials may be attributed to the complexity of cases where cartilage is used. Patients with a history of cholesteatoma, recurrent infections, and residual eustachian tube dysfunction are at risk of failing the procedure.

Keywords: tympanoplasty, cartilage graft, healing success rate, hearing success rate

RC169

AI Integration in UAE Healthcare: Assessing Practitioners' and Students' Acceptance and Readiness

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Introduction: Artificial Intelligence (AI) is transforming healthcare globally, yet its acceptance among practitioners varies. This study investigates the acceptance and readiness of healthcare professionals in the UAE toward AI adoption in healthcare settings, examining cognitive, affective, and behavioral factors influencing their perspectives. **Methods:** An online survey was conducted among healthcare professionals in the UAE, including doctors, nurses, pharmacists, dentists, and allied health staff. A pilot study with 10 participants informed survey refinements. The final survey assessed demographics, AI knowledge, and factors influencing AI acceptance. Data analysis included reliability testing, confirmatory factor analysis (CFA), and structural equation modeling (SEM) to examine relationships between perception, knowledge, trust, risk, benefits, acceptance, and readiness for AI adoption. **Results:** The study revealed a predominantly female (65.38%), well-educated workforce with diverse roles and experience levels. Notably, 80.39% of respondents lacked prior AI training. While 48.1% of participants expressed confidence in their AI knowledge, objective assessments indicated limited understanding. SEM analysis revealed significant relationships between trust, benefits, risk, perception, and knowledge of AI acceptance, which influenced readiness for adoption. **Conclusion**: The findings highlight a discrepancy between perceived and actual AI knowledge among healthcare practitioners in the UAE. This gap, coupled with limited AI training, suggests a need for targeted educational interventions. The identified factors influencing AI acceptance provide valuable insights for developing strategies to enhance AI adoption in healthcare settings. This study

offers crucial insights into the current landscape of AI acceptance and readiness among UAE healthcare practitioners. The results underscore the importance of addressing knowledge gaps and leveraging key factors to facilitate successful AI integration in healthcare, potentially improving patient care and outcomes in the region.

Keywords: artificial intelligence (AI), digital health, health professionals, AI adoption

RC263

AI-supported Dermatology Education Material for Patients

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Background: Patient education is essential for effective dermatological care, but traditional materials often fail to address the diverse literacy needs in the UAE. With 30% of adults struggling to understand health information, Rashid Hospital's Dermatology Center is leveraging AI tools like ChatGPT to create accessible, patient-friendly materials for common conditions such as eczema, acne, and psoriasis. This marks a pioneering use of AI in dermatology education across the UAE. The aim of this study was to assess whether AI-generated educational materials improve readability and patient comprehension while maintaining medical accuracy and cultural relevance in Dubai's multilingual setting. **Methods:** ChatGPT was used to generate guides for approximately 50 dermatological conditions, simplified to a sixth-grade reading level. A multidisciplinary team of dermatologists reviewed the materials for medical accuracy and relevance using the structure of the observed learning outcome (SOLO) taxonomy. Readability was measured using the Flesch-Kincaid Grade Level and compared to existing resources. **Results:** The AI-generated materials achieved an average readability score of 48.67 $\pm$ 7.34 ($P < 0.0001$), making them suitable for high school-level readers. While many UAE patients are college graduates, the simplified content proved beneficial, especially for non-native speakers and patients from diverse linguistic backgrounds. Traditional materials scored over 60 on the Flesch-Kincaid scale, making the AI-generated materials more accessible to a broader range of patients. Anticipated improvements in comprehension, particularly for non-native English and Arabic speakers, were supported by patient feedback, though further research was needed to quantify these gains. A text similarity index of 26.83 $\pm$ 10.92% ($P = 0.0015$) indicated a need for further customization to ensure originality. **Conclusion**: Rashid Hospital's use of AI in dermatological education offers a scalable solution for improving health literacy. With physician oversight and cultural adjustments, AI-generated materials can enhance patient understanding and care, transforming dermatology education in the UAE.

Keywords: artificial intelligence (AI), ChatGPT, dermatology patient education, skin conditions

RC20

Alleviating Severe Hyponatremia in Microvillous Inclusion Disease Infants: Unconventional Success of Mineralocorticoids in a Novel Therapeutic Approach

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Introduction: We present an extremely rare case of a 10-month-old with microvillous inclusion disease, a homozygous MYO5B mutation. The rarity of congenital diarrhea, compounded by total parenteral nutrition dependence, underscores the complexity. Our report highlights effective mineralocorticoid use in managing water and sodium depletion, offering insights into potential therapeutic modalities in similar cases. **Methods:** The patient experienced increased stool loss, leading to severe dehydration necessitating continuous massive volume replacement (>300 ml/kg/day). Particularly challenging was the sodium loss, requiring an exceptionally high daily dose (>27 meq/kg). Literature indicates the presence of fludrocortisone receptors in the gut, playing a role in sodium and water reabsorption. Unprecedented in congenital diarrhea, we employed fludrocortisone to manage profound water and sodium loss, even with doubtful intestinal absorption, as kidneys had reached maximal sodium reabsorption capacity with undetectable urinary sodium. **Results:** Fludrocortisone was initiated at an initial oral dose of 50 mcg, gradually increased to 100 mcg daily over 2 weeks. Throughout the trial, no concurrent interventions affecting electrolytes or fluid balance were implemented. Notably, there was a reduction in Renin and aldosterone levels (initially elevated), alongside decreased total fluid and sodium intake, reduced stool output, and a gradual increase in serum sodium (Graph 1). In response to profound hyponatremia, a 3% NaCl infusion was necessitated as a crucial intervention. However, with the attainment of the full therapeutic dose of Fludrocortisone, the need for this infusion was successfully eliminated, allowing for its gradual discontinuation. No significant side effects, including alterations in potassium levels or blood pressure, were observed during this transition. Consequently, after 2 months, the patient was stabilized and discharged home on parenteral nutrition. **Conclusion:** We present a pioneering application of mineralocorticoids for managing substantial volume and sodium loss in microvillous inclusion disease, marking a unique approach in medical literature.

Keywords: novel therapeutic approach, mineralocorticoids, microvillous inclusion disease, severe hyponatremia

RC298

Appendicitis Perforated by Endometriosis in a 50-year-old Female: A Case Report

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Introduction: Appendicitis is a common cause of right lower quadrant pain and a frequent emergency surgery, with approximately 300,000 appendectomies performed annually in the US Endometriosis, a condition involving the growth of endometrial tissue outside the uterus, usually affects pelvic organs. However, in rare cases, endometriosis can involve the appendix, leading to appendicitis. This case report discusses a rare instance of perforated appendicitis caused by appendiceal endometriosis in a 50-year-old woman, emphasizing the diagnostic challenges and the need for awareness of such atypical presentations. **Case Presentation**: A 50-year-old woman presented with a 2-day history of right lower quadrant pain. She was afebrile but had significant tenderness and guarding on examination. Blood tests revealed elevated inflammatory markers, and CT imaging suggested complicated acute appendicitis. The patient underwent a laparoscopic appendectomy. Intraoperatively, the appendix was inflamed, with adhesions and a small ovarian cyst. Histopathology confirmed appendiceal endometriosis with focal acute appendicitis. The patient recovered without complications and was discharged on day 3, postoperation. Endometriosis affects 8-10% of reproductive-age women but rarely involves the appendix, with an incidence of 0.4% in the general population and up to 7.23% in gynecological surgeries. Appendiceal endometriosis can present as acute appendicitis or remain asymptomatic. The exact cause is unclear, with theories including retrograde menstruation and metaplasia. Diagnosing appendiceal endometriosis preoperatively is difficult because its presentation often mimics typical appendicitis. Histopathology provides a definitive diagnosis. Treatment usually involves surgery, sometimes combined with hormone therapy, depending on the case. **Conclusion:** This case highlights the complexity of diagnosing appendicitis caused by endometriosis. Though rare, it should be considered in women with atypical appendicitis, particularly those with endometriosis history. A multidisciplinary approach is essential for management.

Keywords: appendicitis, endometriosis, perforation

RC237

Application of Sigma Metrics to Evaluate Analytical Performance and Design QC Rules for a Hematology Blood Cell Count Analyzer

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Introduction: Accurate laboratory results are crucial for patient care, necessitating rigorous quality control (QC) and performance monitoring. Sigma metrics, a statistical method for performance assessment, can be used as a tool to enhance QC procedures beyond traditional Westgard rules, potentially reducing unnecessary reruns and optimizing resource use. **Methods:** The study assessed the analytical performance of the DXH900 automated cell count analyzer using internal quality control (IQC) data. Parameters evaluated included hemoglobin, red blood cells, hematocrit, white blood cells, and platelets. Sigma metrics were applied to calculate bias, imprecision, and the 'sigma' value for each parameter at different concentrations of controls to evaluate the performance and design parameter-specific QC rejection rules. **Results:** Sigma values were calculated for each parameter at three control levels. Key findings include Hemoglobin: high performance with sigma values for three levels ranging from 4.127 to 7.218. RBC: Marginal to poor performance with sigma values from 2.924 to 3.623. Hematocrit: Marginal to good performance with sigma values between 3.692 and 4.235. WBC: Excellent performance with sigma values ranging from 5.008 to 6.400. Platelets: exceptional and world-class performance with sigma values from 12.011 to 15.765. Customized QC rejection rules were then determined for each parameter using the Westgard Sigma rules TM and the normalized Op Specs chart. **Conclusion:** The application of sigma metrics to the DXH900 analyzer highlights its robust performance for most parameters. For parameters with lower sigma values, stricter QC rules are necessary to ensure reliability and accuracy. This approach enables more precise QC rule application and optimizes analyzer performance, contributing to better patient-care outcomes.

Keywords: sigma metrics, analytical performance, automated hematology analyzers, quality control

RC40

Artificial Intelligence (AI) in Nursing Education: Enhancing Learning and Teaching

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Background: The integration of AI into nursing curriculum provides a unique opportunity to innovate the learning experience, enhance learning outcomes, and promote critical thinking. Global adoption of AI technology in healthcare will grow to 38.4% by 2030. A survey by the American Nurses Association found that only 25% of nurses feel comfortable using AI tools in the clinical setting. Research shows that the need for nurse educators to incorporate the types of AI is valuable in enhancing and preparing nursing for professional practice when used responsibly. The following abstract describes some innovative uses and tools of AI in nursing education and discusses implications for educators and the nurse's profession. **Methods:** With the aim of understanding AI tools in nursing education and their implementation, AI evidence-based literature and AI applications were critically reviewed. **Results:** Evidence-based literature shows that there are 4 domains for AI in nursing education which are AI Simulation: A variety of tools, including virtual patients and high-fidelity simulations, demonstrated an enhancement in the clinical decision-making process. Personal Learning: AI algorithms interpret learners performance data to construct personalized learning experiences for learners. Assessment and Feedback: Real-time feedback about learner performance is possible with AI tools in simulations to effect immediate corrections and improve learning. Interprofessional collaboration: AI-driven platforms facilitate collaborative learning experiences among nursing learners and other healthcare disciplines, promote teamwork, and communication skills. **Conclusion:** The application of AI tools within nursing education holds great potential in contributing to improved learning experience and preparing learners for the future.

Keywords: artificial intelligence (AI), nursing education, learning and teaching

RC315

Artificial Intelligence in Obstetrics and Gynecology: Rules and Principles - A Review Article

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Background: Artificial Intelligence (AI) is changing the field of obstetrics and gynecology, offering new ways to improve diagnosis, treatment, and patient care. This review looks at the main rules and guidelines for using AI in obstetrics and gynecology, focusing on its benefits, challenges, and future possibilities. **Methods**: We reviewed scientific articles, clinical studies, and policy papers from 2015 to 2023, using databases like PubMed, Scopus, and Google Scholar. The focus was on how AI is used in prenatal care, fetal monitoring, surgery, and predicting pregnancy-related complications. We also looked at the ethical and legal guidelines that help ensure AI is used safely in healthcare. **Results:** AI is showing great promise in improving patient outcomes, such as helping doctors diagnose issues during pregnancy, manage high-risk pregnancies, and perform surgeries with more precision. AI tools, like machine learning, help predict complications like pre-eclampsia and pre-term birth. However, challenges remain, such as concerns over data privacy, the need for clear rules and standards, and the risk of bias in AI algorithms. **Conclusion:** AI can greatly improve care in obstetrics and gynecology by offering more accurate and personalized treatments. However, we must address ethical and legal challenges to ensure AI is used responsibly. Ongoing research and collaboration between doctors, AI experts, and policymakers are key to unlocking AI's full potential in this field.

Keywords: artificial intelligence, obstetrics, gynecology, machine learning, prenatal care, surgery, ethical concerns, bias, data privacy, regulations

RC281

Assessing Diabetes Care Practices and Knowledge Gaps Among UAE Healthcare Professionals: A Mixed-methods Study

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Background: With diabetes affecting 12.3% of adults in the UAE, this study aimed to assess best practices and challenges faced by healthcare professionals (HCPs) in diabetes care. **Methods:** This mixed-methods study involved semi-structured interviews and an online survey with HCPs from four UAE public healthcare sites. Participants had ≥3 years of experience and ≥6% diabetes patient caseload. Interviews explored facilitators and barriers to optimal diabetes care. Surveys assessed current and desired knowledge/skill levels in diabetes care. A patient case scenario evaluated HCPs' ability to identify gestational diabetes risk factors and select appropriate treatments. **Results:** Interviews (n=24) revealed guideline-driven approaches and commitment to optimal patient care. Survey findings (n=62) showed that 58% of HCPs reported advanced/expert knowledge of diabetes care guidelines, while 42% desired higher knowledge levels. Limited adaptation of international guidelines to local contexts was noted. In diabetes signs/symptoms, 83% rated their knowledge as advanced/expert. However, 35% reported a higher desired skill level in recognizing risk factors for diabetes screening than their current level. The patient case scenario revealed gaps in identifying high-risk indicators for gestational diabetes and selecting appropriate treatments. Only 9% correctly chose lifestyle change and insulin therapy for initial treatment. Additionally, 31% reported advanced/expert knowledge of insurance policies for treatments, while 60% showed a knowledge gap. **Conclusion:** This study highlighted HCPs' adherence to standardized guidelines while uncovering diagnosis and individualized treatment gaps. These findings inform tailored educational interventions to reinforce best practices, address identified needs, and support HCPs in implementing optimal changes in diabetes care performance.

Keywords: diabetes, healthcare professionals, mixed-methods, context assessment, Dubai

RC172

Assessing Quality of Life in Women Following Urinary Incontinence Correction Procedures: A Comprehensive Literature Review

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Background: This review addresses the problem of assessing the impact of urinary incontinence correction procedures on the quality of life (QoL) in women. The primary question is how well current

assessment tools and methodologies capture the comprehensive effects of these procedures on women's QoL. The main objectives are to identify and evaluate the available assessment tools for measuring QoL in women undergoing urinary incontinence correction, to analyze the effectiveness of different treatment options, and to provide recommendations for improving QoL assessment in this context. **Methods:** This review involves a comprehensive analysis of the scientific literature related to QoL assessment tools for urinary incontinence. It includes a detailed examination of various surgical and non-surgical treatment methods, their efficacy, and the corresponding impact on QoL. **Results:** Data were collected from studies utilizing various questionnaires and assessment tools, and the review includes a critical evaluation of these tools' psychometric properties. **Conclusion:** While numerous QoL assessment tools are available, the International Consultation on Incontinence Questionnaire (ICIQ) is the most commonly used. However, there is significant variability in the efficacy of treatment options, with success rates ranging from 53% to 86% depending on the procedure and study. The impact of these treatments on QoL is variable, not only with improvements noted in both physical and psychological well-being but also contradictions in the perceived versus actual outcomes. The findings highlight the need for standardized and sensitive QoL assessment tools that better capture the multifaceted impact of urinary incontinence correction procedures. The review suggests that incorporating patient-reported outcomes (PROs) and considering cultural, socioeconomic, and psychological factors will enhance the evaluation of treatment success. Future research should focus on developing comprehensive tools and refining current methodologies to better align clinical outcomes with patients' expectations and experiences.

Keywords: urinary incontinence, quality of life, women's health, surgical interventions, non-surgical interventions, patient-reported outcomes

RC215

Assessing the Burden of Dysmenorrhea on the Quality of Life Among Women of Reproductive Age in the UAE: A Cross-sectional Study

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Introduction: Dysmenorrhea, marked by painful menstruation and symptoms such as nausea and dizziness, is classified as primary (due to prostaglandin-induced contractions) or secondary (linked to conditions like endometriosis). The prevalence of dysmenorrhea among women varies globally, with 89.1% in Iran, 65% in India, and 94.7% in Dubai. It disrupts education, work, and social life. This study examines

its impact on women's quality of life in the UAE, including physical, psychological, social, and emotional effects. **Methods**: This cross-sectional study, conducted from January to May 2024, targeted women of reproductive age in the UAE with dysmenorrhea. Data were collected through a Google Forms questionnaire, including demographics and Likert scale questions on dysmenorrhea, and were analyzed using descriptive statistics. **Results:** A total of 356 women were surveyed, with 9 excluded (menopausal or prepubescent), leaving 347 participants. Of these, 61.24% were aged between 20 and 29, and 90.77% reported menstrual pain. Moderate pain (4-6 on the pain scale) was most common, affecting 47.89%, and pain lasted 1-3 days for 89.94%. About 9.91% were hospitalized due to dysmenorrhea, and 49.27% experienced curricular absenteeism. Dysmenorrhea affected concentration in 81.59% and caused a depressed mood in 73.77%. Social impacts included strained relationships (51.01%) and difficulty with daily tasks (71.75%). Sexual drive was affected in 39.76%, and 67.30% reported societal stigma in seeking help. **Conclusion:** Dysmenorrhea affects women's quality of life across demographics, with many reporting moderate to severe pain. It also impacts psychological, social, and sexual health, and help-seeking is hindered by perceived neglect and societal stigma. These findings emphasize the need for increased awareness, effective management, and improved healthcare support in the UAE.

Keywords: dysmenorrhea, quality of life, prevalence, UAE

RC266

Assessment of attitudes and Practices Toward Deprescribing Among Patients and Healthcare Professionals in UAE: The DUET study (Deprescribing Understanding and Engagement in the UAE)

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Introduction: Inappropriate polypharmacy and potentially inappropriate medications (PIMs) are a well-known risk factor for negative health outcomes. The major aim of better prescribing is to improve rational prescribing for optimum patient care; therefore, deprescribing gained momentum in recent years. Deprescribing is the process of withdrawal of inappropriate medication to manage polypharmacy and

improve outcomes. Deprescribing may not be routine practice because of health system, prescriber, and patient-related barriers. Currently, there are no guidelines regarding deprescribing in the UAE. Thus, this study aimed to understand the attitudes, beliefs, and knowledge of patients, physicians, and pharmacists on the deprescribing practice. **Methods:** Data were collected in the form of validated questionnaires by interviewing patients, physicians, and pharmacists in hospitals and pharmacies within the study setting after receiving ethical approval. Collected data were analyzed using SPSS. **Results:** A total of 300 participants (150 patients and 150 health care professionals (HCPs) completed the questionnaires. 38.1% of patients felt that they were taking too many medicines and considered it a financial burden. 39.6% wanted their doctors to reduce the dose. 76.7% strongly agreed with deprescribing their medicines, if their physician thought it was appropriate. HCPs strongly agreed that deprescribing could improve patient outcomes (88.9% pharmacists and 74.1% physicians). At 51.8% both professions felt that a lack of policy made it difficult for them to suggest deprescribing. Overall, HCPs were willing to deprescribe medicines if appropriate at 75.5%. Patients with polypharmacy and multiple morbidities showed significantly ($p < 0.05$) more willingness to deprescribe. **Conclusion:** The results obtained from this study helped us to identify the potential barriers of deprescribing and provide suggestions toward facilitating the implementation of deprescribing practices in the UAE healthcare system.

Keywords: polypharmacy, deprescribing, DUET

RC221

Assessment of Hemodynamic and Autonomic Responses to Change in Posture in Diabetic Patients Versus Healthy Individuals

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Background: Diabetes mellitus is associated with cardiovascular issues. Type 2 Diabetes (T2D) leads to autonomic dysfunction, reduced heart rate variability, and higher cardiac risk. Studying responses to posture changes in diabetics helps in understanding these complications. The aim of the current study was to investigate the hemodynamic and autonomic responses to a 5-minute sit-to-stand test in T2D patients. We hypothesized that there would be differences in hemodynamic and autonomic responses between T2D patients and healthy individuals during a sit-to-stand test. **Methods:** A total of 142 participants (126 diabetic patients and 16 age-matched healthy controls) were enrolled in the study. Hemodynamic parameters including heart rate, blood pressure, as well as autonomic function derived through heart rate variability (HRV) signal, were measured at rest and during postural changes. Continuous beat-to-beat measurements of heart rate, blood pressure, cardiac index, stroke index, total peripheral resistance index, low frequency (LF) and high frequency (HF) band powers were carried out using the Task Force Monitor (CNSystems, Graz, Austria). Statistical analyses were performed to compare the responses to a 5-minute sit-to-stand test between diabetic and healthy groups. **Results:** 115 diabetic patients (age 54.15 ± 8.46 years, height 163.34 ± 10.08 cm, and weight 86.03 ± 20.51 kg) and 16 healthy participants (age 40.06 ± 10.22 years, height 168.66 ± 6.8 cm, and weight 78.22 ± 10.17 kg) completed the study. In both diabetic and control groups, significant differences were observed in hemodynamic and autonomic parameters during the sit-to-stand test compared to baseline values. Furthermore, significant differences in hemodynamic and autonomic responses during the test across diabetic and control groups were seen. **Conclusion:** Our findings show that autonomic dysfunction in diabetics impairs cardiovascular adaptation to postural changes. Understanding these variations can lead to targeted interventions for orthostatic intolerance and fall prevention. Regular cardiovascular assessments, such as the sit-to-stand test, are crucial for diabetics.

Keywords: hemodynamic, blood pressure, autonomic

RC37

Association of Anemia and Diabetic Retinopathy Among Patients with Type 2 Diabetes Mellitus: Retrospective Cross-sectional Study

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Introduction: To determine the prevalence of anemia among diabetic patients is necessary to assess whether treatment practices should be changed. Anemia is a common complication in patients with T2DM and has been associated with the progression of DR. In this study, our aim is to determine the prevalence of DR and its association with hemoglobin levels in patients diagnosed with T2DM in Dubai. **Methods:** In

this retrospective cross-sectional study, we extracted the data using electronic medical records. The study was performed over a span of 3 years from 2019 to 2022. A total of 368 T2DM patients were included based on retinal exam findings classified into mild, moderate, severe non-proliferative retinopathy, and proliferative retinopathy. **Results:** The prevalence of anemia was observed in 39.4% of individuals with DR aged between 40 and 88 years; 60.6% of the patients had normal hemoglobin, while 91 individuals (24.7%) exhibited mild anemia, 53 individuals (14.4%) showed moderate anemia, and only one individual (0.3%) had severe anemia. DR grading was as follows: mild non-proliferative DR (16.8%), moderate non-proliferative DR (30.2%), severe non-proliferative DR (13.3%), and proliferative DR (39.7%). Macular edema was present in 59.2% of patients, showing a statistically significant association with more severe DR stages ($p< 0.0001$). Macular edema strongly predicted DR severity, with significant odds ratios across all stages ($p < 0.0001$). **Conclusion:** There is a significant prevalence of anemia among the examined population. DR severity was associated with lower hemoglobin levels in males, and macular edema was significantly linked to more severe stages of DR. Regular retinopathy screening is essential for early detection and timely intervention, particularly considering the challenges posed by anemia, such as delayed wound healing and increased infection risk post-screening.

Keywords: anemia, diabetic retinopathy, T2DM

RC174

The Association of Visceral Adiposity with Handgrip Strength in Community Dwellers of the UAE

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Background: Handgrip strength (HGS) is a powerful tool to assess generalized body health; however, its association with visceral adipose tissues (VATs) in the community dwellers of the UAE is not known. The objectives of this study were to investigate the association between HGS and VATs in the UAE population of both genders, 18–65 years of age (n = 1146). **Methods:** This is a cross-sectional study conducted in various community centers of the UAE from June to October 2021. We used a handgrip dynamometer to

measure HGS and a bioelectrical impedance scale to measure body composition, including VAT content. VAT was categorized into low (1–9), optimal (10–14), and high (15–30) levels. We used t-test and ANOVA analyses to measure differences in HGS and VAT across gender and age groups. **Results:** The peak HGS was found in the third and fourth decades of life, followed by an age-associated decline. We report that the highest HGS for dominant was found in people with the optimal VATs content irrespective of gender and age. Conversely, having low or high VATs was associated with lower HGS. However, no differences were observed between the HGS of dominant versus nondominant hands in men and women. **Conclusion:** Altogether, we report an association of optimal VAT content with peak HGS, so that having low or high VATs were associated with reduced HGS. Taken together, the measurements of VAT and HGS may be helpful in assessing generalized health in preclinical settings.

Keywords: Gait speed, handgrip strength, skeletal muscle, visceral adipose tissue

RC171

Astronaut Virtual Emotional Stimulation Platform

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Introduction: Long-term space missions pose significant challenges to astronauts' mental health and cognitive performance. Virtual reality positive memory enhancement (VRPME) represents a novel approach to addressing these challenges. This study investigates the efficacy of VRPME in enhancing astronaut mental resilience and performance during extended space missions. **Methods:** The study employs a randomized controlled design, integrating VRPME with traditional high-performance task (HPT) training. Participants will be exposed to customized upregulation and downregulation VRPME experiences before and after HPTs. Real-time biomarker analysis will be used to measure physiological responses. The VRPME intervention will be administered both pre-mission and in-flight, with regular assessments of stress resilience, neurocognitive health, and emotional well-being. **Results**: While results are pending, we hypothesize that VRPME will significantly enhance stress resilience and improve neurocognitive health and emotional well-being among astronauts throughout the mission. We expect to observe measurable improvements in performance metrics and physiological indicators of stress resilience in the VRPME group compared to the control group. **Conclusion:** This study represents a significant advancement in space psychology and astronaut preparation. The integration of AI-generated virtual reality technology with positive memory enhancement offers a cutting-edge method for optimizing astronaut cognitive

function and emotional resilience. The customized approach to mental state modulation and the incorporation of real-time biomarker analysis provides unprecedented insights into astronaut mental states and performance optimization. VRPME shows promise as an innovative psychological intervention for enhancing astronauts' mental health and performance during long-term space missions. This research has the potential to significantly impact astronaut training protocols and in-flight mental health management strategies, ultimately contributing to the success and safety of future long-duration space exploration missions.

Keywords: virtual reality (VR), mental health, biomarkers, innovation

RC230

Audit on the Management of Orbital and Preseptal Cellulitis: Evaluating Current Practices and Establishing Local Guidelines

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Background: Preseptal cellulitis is an infection of the eyelid and associated tissues, often stemming from contiguous structures, while orbital cellulitis is a severe, vision-threatening infection within the orbital cavity. The distinction between these conditions is often unclear, leading to variability in clinical management. The aim of the study was to assess adherence to treatment standards for orbital infections, identify inconsistencies in the management of orbital and preseptal cellulitis, and propose a local guideline to standardize care. The study also evaluated antibiotic therapy, multidisciplinary team engagement, and the correlation between inflammatory markers and length of stay in patients with orbital/preseptal cellulitis in 2023. Identify and address inconsistencies in the management of these infections. Reaudit practices to measure the impact of improvement actions. **Methods**: This audit reviewed the management of patients admitted with orbital and preseptal cellulitis over a one-year period of 2023. Data extracted from patient's chart were collected for analysis later. Key audit standards included: Empirical antibiotic regimen of IV Vancomycin or IV Ceftriaxone for patients with normal renal function (target 100%). Repeat imaging for patients without improvement or worsening symptoms within 48 hr (target 100%). Testing for inflammatory markers and complete blood count upon admission (target 100%). Twice-daily ophthalmology reviews during the first 48 hr for orbital cellulitis (target 100%). Compliance with outpatient antibiotic regimens upon discharge (target 100%). **Results and Conclusion:** Preliminary data gathering reveals variability in the management of orbital and preseptal cellulitis. Data analysis is ongoing, and local guidelines will be developed based on the findings. We anticipate presenting the full analysis at the conference, including recommendations for improvement and the design of a re-audit to measure the guideline's impact on clinical practice.

Keywords: orbital cellulitis, clinical audit, antibiotic management

RC45

The Automation of Clinical Genetic Data Through Implementation of ACMG Guidelines

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Background: Whole genome and whole exome sequencing have shown better results in the diagnosis, treatment, and prevention of diseases. Additionally, the advances in long- and short-read sequencing methods have enabled the detection of a large number of single nucleotide variants (SNVs) and structural variants (SVs). Despite these developments, the interpretation of genetic variants remains a huge bottleneck in genomics. Although there are standard guidelines established by the American College of Medical Genetics (ACMG), the manual process of filtering variants moves at a much slower pace than the data generated. **Methods:** To streamline the functional classification process, we have developed an interpretation tool called Horizon for automating the implementation of ACMG guidelines for clinical genetic diagnosis support. Through the integration of artificial intelligence (AI), Horizon integrated into a clinical language model to construct a gene panel based on patient phenotypes. Variant annotation results were found to be in 99% concordance with ANNOVAR annotations. **Results:** To assess the sensitivity and specificity of detecting diagnosable (damaging) variants, receiver operating characteristic (ROC) curve

analysis has shown 96% accuracy in detecting the clinically diagnosed SVs. Data used in the platform and in validation are from genetically diverse populations showing a balanced representation of the model's accuracy. **Conclusion:** The automation of clinical genetic data interpretation has shown a significant reduction in time and costs of genetic diagnosis. Our study shows promising outcomes in research and healthcare by deciphering genomics at a large scale with high accuracy.

Keywords: American College of Medical Genetics (ACMG), clinical genetics, diagnostics, tertiary analysis, variant interpretation

RC126

Bedside Bronchoscope to Manage Postoperative Severe Pulmonary Atelectasis

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Background: Pulmonary complications are considered one of the communist postoperative complications, and is responsible for most of postoperative morbidities and mortalities. Postoperative atelectasis is the most common cause of postoperative pulmonary complications. **Case Report:** We present a 42 years old, female patient, who was operated for exploration laparotomy in view of her preoperative clinical picture of severe sepsis which led to hemodynamic instability due to severe pelvic inflammatory disease. Post-operative, she was kept intubated and ventilated in the intensive care unit. She had a massive right upper lobe collapse, it was resistant to physiotherapy, and ventilatory setting changes. This atelectasis delayed the extubation process. An ICU anesthetist performed the bedside bronchoscope, and a huge mucus plug was found obstructing the right upper lobar bronchus, it was the main cause of lung collapse. It was removed successfully through a bronchoscope. Dramatic improvement (clinical, radiological) was noted shortly following the procedure and successful extubation 1-hr post bronchoscope.

Keywords: bronchoscope, bedside bronchoscope, atelectasis, postoperative complications, pulmonary complications, intensive care, ventilator, septic shock

RC09

Beyond Boundaries: Vaginal Squamous Cell Carcinoma's Metastasis to the Kidney

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Introduction: Vaginal squamous cell carcinoma (SCC) is a rare malignancy accounting for approximately 1-2% of all gynecological malignancies. Despite this, its management is challenging due to its aggressive nature and propensity for recurrence. The usual metastatic sites of vaginal SCC are the lungs, liver, and bones; however, a metastasis to the kidney is extraordinarily rare, with limited data available. However, few cases of renal metastasis from cervical cancer were reported. **Case Presentation**: A 69-year-old female with a history of cervical cancer, presented with a right vaginal mass indicating possible recurrence. Imaging revealed an invasive mass in the urinary bladder, distal ureter, and rectum, along with lung masses indicative of metastasis. After undergoing various procedures, including chemotherapy and radiotherapy, she developed a vesicovaginal fistula and urinary incontinence. In February 2023, a right robotic-assisted simple nephrectomy was performed, uncovering an unexpected poorly differentiated SCC deposit in the renal pelvis, the first instance of kidney involvement. Despite the nephrectomy, she continues to experience significant urine leakage per vagina, which greatly affects her quality of life. **Conclusion:** This case highlights the rare occurrence of vaginal SCC metastasizing to the kidney, emphasizing the need for understanding and managing atypical presentations. It emphasizes the significance of a multidisciplinary approach in managing complex malignancies and addressing complications like vesicovaginal fistula. Further research into the metastatic pathways of vaginal SCC is warranted to enhance knowledge and improve the management of this uncommon disease.

Keywords: vaginal squamous cell carcinoma, metastasis, kidney, cancer, tumor progression

RC144

BMI Levels Among Adolescents Aged 10-19 Attending Dubai Health Facilities in 2023

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Introduction: Adolescence is the phase of life between childhood and adulthood, from ages 10 to 19. It is a unique transition period and an important stage for developing healthy behaviors. Abnormal body mass index (BMI) can affect the adolescent's development, health, and well being. The aim of this study is to identify the BMI level among adolescents aged 10-19 years attending Dubai Health facilities in 2023. **Methods:** This study is a retrospective descriptive study. The target population encompasses all adolescents aged 10-19 years old who attended Dubai Health facilities from January 1st to December 31st, 2023. Data collection were done using EPIC electronic medical records through the slicer dicer feature. Data gathering adhered to strict confidentiality with no identifiers. Data analysis was done using Microsoft Excel. **Results:** A total of 437,531 adolescents were included in our study. Of those, 390,186 (89%) adolescents did not have their BMI levels checked during their visits to our facilities. In comparison, 47,355 (11%) had their BMI levels recorded. The highest number of adolescents 20,002 (42%) had normal healthy BMI levels. A significant number of adolescents 13,112 (28%) had BMI levels below 18.5 kg/m^2. A total of 7942 (17%) had BMI levels between 25.0 and 30.0 kg/m^2. While 6299 (13%) adolescents had a BMI level >30.0 kg/m^2. **Conclusion:** BMI is considered an important indicator of overall health, as it provides valuable insights into the risk of morbidity and mortality. In this study, 89% of adolescents do not undergo BMI measurement. Therefore, it is important to raise awareness by prioritizing BMI screening, dietary education, and physical activity to pave the way toward a healthier future.

Keywords: body mass index, adolescents, obesity, underweight

RC62

Bradycardia in Septic Patients as an Early Sign of Fungal Blood Stream Infection

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Introduction: Fungemia has become an increasingly significant cause of morbidity and mortality in hospitalized patients. Several factors contribute to this trend, including the advancement of invasive diagnostic and therapeutic techniques, prolonged hospital stays, excessive antibiotic use, and the rising number of chronically ill patients. These factors have a direct impact on the increased prevalence of fungal infections. Sepsis is generally recognized as a life-threatening hyperdynamic condition, commonly characterized by tachycardia as part of the systemic inflammatory response. However, in rare instances, patients may exhibit a paradoxical response in the form of bradycardia. This atypical presentation should prompt heightened vigilance and consideration of an underlying threat. **Case Report:** Three patients had an unexplained bradycardia with septic shock. Their blood culture showed fungal growth. Fortunately, within 2 to 3 days of starting anti-fungal therapy, all patients showed marked improvement of the bradycardia. This improvement supports the assumption of the relation between bradycardia and fungal blood stream infection. **Conclusion:** A detailed timely mannered analysis of three patients with different gender, age stages, comorbidities, length of hospital stay, source of infection, and even the *Candida* species. They all had septic shock with unexplained bradycardia. Other possible causes of bradycardia were excluded such as significant electrolyte disturbances, hypothermia, hypothyroidism, and the use of negative chronotropic medications. Moreover, these findings were compared in detail to other case reports and animal studies. This study serves to underscore the paramount importance of maintaining a high index of suspicion for fungal pathogens in septic patients presenting with bradycardia, advocating for heightened clinical vigilance and a proactive approach to diagnostic and therapeutic decision making. Furthermore, it underscores the urgent imperative for robust clinical research endeavors aiming at elucidating the efficacy and therapeutic impact of early antifungal interventions on the clinical outcomes in the context of sepsis.

Keywords: fungemia, Candidemia, bradycardia, sepsis, septic shock

RC44

Building a Climate-resilient Healthcare Ecosystem in Dubai: Strategies for Sustainability and Health Equity

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Introduction: Climate change is creating significant challenges for global health systems, necessitating new approaches to building climate-resilient healthcare ecosystems. This article examines efforts in Dubai

to align healthcare with UAE's sustainability initiatives, particularly COP28. The focus is on health equity and sustainability policies to strengthen healthcare infrastructure in response to climate impacts. The research aims to assess the current challenges and opportunities in Dubai's healthcare landscape concerning climate change, capturing community awareness pre- and post-COP28, and proposing strategies for system changes to achieve net-zero in line with UAE's sustainability goals. **Methods:** A multidisciplinary approach is used, including expert interviews and surveys conducted between October 2022 and February 2024. These surveys, conducted via the Dubai Statistics Center, targeted a diverse group of residents aged 18 and above. The research also draws on existing literature, best practices, and case studies to ensure comprehensive analysis. **Results:** One major challenge is the lack of baseline data on healthcare carbon emissions in the UAE, making it difficult to develop targeted strategies. Current waste management practices and energy use within Dubai's healthcare infrastructure have great opportunities to support climate resilience. Additionally, public awareness of the link between climate change and healthcare significantly increased post-COP28. Addressing medical waste, improving emergency protocols, and ensuring sustainable infrastructure are critical for advancing resilience. **Conclusion:** The absence of carbon emission baselines, reduced community engagement plans, and inefficient waste management are key challenges in Dubai's healthcare sector. However, the vision of a climate-resilient healthcare ecosystem, aligned with UAE's net-zero goals, can reduce the sector's environmental impact while ensuring public health safety.

Keywords: climate-resilient, healthcare, sustainability, strategy, Dubai

RC116

Cardiovascular Manifestations of Multisystem Inflammatory Syndrome in Children (MIS-C)

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Introduction: Children present with a mild acute phase of the COVID infection, a rare complication was seen in the post-acute phase. They presented with a syndrome that strongly resembled Kawasaki disease - multisystem inflammatory syndrome in children (MIS- C). Through our review, we discuss the

cardiovascular manifestations as these have been associated with significant morbidity and mortality. **Methods**: In this review article we searched electronic databases on PubMed, NEJM, EBSCO, Scopus, etc. using the Keywords “COVID-19, long term complications, post-COVID syndrome, MIS-C, myocardial injury, arrhythmia, cardiovascular complications”. Data and guidelines from the websites of the CDC, WHO, and AHA were reviewed and referenced for this literature review. The literature search was restricted to articles published in English and did not include articles on adults. **Results:** The prevalence of coronary artery aneurysm in MIS-C is about 13-26%. Elevated BNP levels and abnormalities of ventricular function on echocardiography in these patients shows that prevalence of ventricular dysfunction in MIS-C is about 33-50%, with multifactorial etiology. Autopsy studies on MIS-C patients, although limited, have indicated inflammation and SARS-CoV-2 virus within myocardial tissue. Another complication of MIS-C/COVID-19 infection is arrhythmia. Possible pathogenetic pathways explored by some studies postulated that atrial or ventricular fibrosis is secondary to myocardial injury from viral myocarditis, increasing the risk of arrhythmias. This has a prevalence of about 28-67%. Cases of severe sinus bradycardia have been resolved following anti-inflammatory therapy. All studies investigating cardiac changes associated with MIS-C reported some elevation in troponin. Many children with a cardiac manifestation of MIS-C do have nonspecific ECG changes. **Conclusion:** Cardiac manifestations of MIS-C such as those discussed above, are common and can occur at varying levels of severity. There is a need for studies to be done on the prognosis and management of patients with cardiac complications.

Keywords: cardiovascular, MIS-C, complications

RC302

A Case of Pancreatic Pseudocystocolonic Fistula: A Multidisciplinary Approach for the Management of a Rare Complication

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Introduction: Pancreatic pseudocyst formation is a known complication of acute pancreatitis, with sequelae including hemorrhage, rupture, and infection. Pancreatic pseudocystocolonic fistula is a rare complication, with few cases reported, presenting significant diagnostic and therapeutic challenges. **Case Presentation:** We present the case of a 63-year-old female who presented with epigastric and right

upper quadrant pain, steatorrhea, and systemic symptoms 4 weeks after initial treatment for acute pancreatitis. Investigations showed elevated inflammatory markers and a pancreatic pseudocyst on computed tomography (CT). The patient was scheduled for endoscopic drainage but developed sudden diarrhea, a rise in inflammatory markers, and worsening abdominal pain. Endoscopic ultrasonography (EUS) revealed minimal fluid and debris, while a repeat CT showed a reduced pseudocyst size, gas bubbles, and a pseudocystocolonic fistula. A percutaneous drain was placed, yielding feculent material. Subsequent colonoscopy identified two fistulas at the splenic flexure communicating with the pseudocyst, which were successfully clipped using the OVESCO clip system. The patient was managed with total parenteral nutrition (TPN) and antibiotics. After clipping, the drain showed no output until flushed, releasing a large amount of pus and necrotic debris, eventually clearing the collection. Continuous flushing was performed until the output ceased. A follow-up CT with oral and rectal contrast showed complete collection regression, though a persistent fistulous tract was suspected. Radiology consultation confirmed no clear communication, and the endoscopic clips remained intact. The patient improved clinically and biochemically, tolerated oral diet, and was discharged on 19/08/2024. Follow-up visits will assess treatment success and monitor for recurrence. **Conclusion:** This case highlights the complexities of diagnosing and managing pancreatic pseudocystocolonic fistulas, emphasizing multidisciplinary care. Various studies report nonoperative, endoscopic, and surgical management with variable outcomes. Pancreatic pseudocystocolonic fistula is a rare complication of pancreatic pseudocyst, with no consensus on optimal management. Emerging techniques like OVESCO clipping show promising outcomes.

Keywords: pancreatic pseudocystocolonic fistula, acute pancreatitis, OVESCO clip

RC283

Case of a Single Nodule in an Infant: Molecular Warfare from a Remote Rival

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Background: Mastocytosis is a rare heterogenous group of disorders that is not always limited to skin. It is characterized as a disorder of abnormal mast cell proliferation and accumulation within the skin and possibly other tissues. Mastocytoma accounts for 10-15% of cutaneous mastocytosis. Other forms include maculopapular cutaneous mastocytosis and diffuse cutaneous mastocytosis. It usually presents as a single yellowish-brown lesion on distal extremities in childhood and is often associated with Darier sign. Clinical features of mastocytosis include pruritis, flushing, abdominal pain, and diarrhea. These features are

consistent with mast cell mediator release. **Methods:** The diagnosis is based on clinical signs, laboratory data, and histopathological examinations. **Results**: A 5-months-old female presented to Dermatology clinic with 2 months history of small papule on the dorsal aspect of lower left forearm that gradually grew to light brown solitary nodule. During that time, the baby was frequently biting and rubbing the lesion which led to occasional redness, bleeding, and blistering. Patient's mother also noticed heat-induced flushing of face. Previous history of vomiting, loose stools, poor feeding, and abdominal pain. Furthermore, she had a history of intracranial bleeding due to thalamic vein thrombosis at the age of 3 months. Skin punch biopsy was done and cutaneous mastocytosis was confirmed, which is positive for CD117 in mast cells. Patient's parents were reassured, educated about avoidance of triggering factors such as NSAIDs, and discharged with oral antihistamine and topical steroids. **Conclusion**: Solitary cutaneous masytocytomas mostly occur during infancy. The condition is benign and tends to resolve spontaneously by adulthood. Management is usually symptomatic along with avoidance of triggers. Diagnosis of cutaneous mastocytosis could be challenging and mostly requires histopathological confirmation.

Keywords: mastocytosis, cutaneous mastocytosis, solitary mastocytoma, thrombosis, hypothalamus, hyperplasia

RC254

Case Report: Krukenberg Tumor in Pregnancy Misdiagnosed as Hyperemesis Gravidarum

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Introduction: Krukenberg tumor is metastatic ovarian cancer of gastrointestinal origin. In around 70% of the cases the tumor originates from the stomach and spreads via lymphatics to the ovaries and lymph nodes. Presentation of Krukenberg tumor is vague and might include increasing abdominal girth, pain, or fatigue. Ascites is often a late feature indicating peritoneal metastasis. It is classified as stage IV disease, and it has a poor prognosis. There are no current treatment guidelines. **Case Report**: A 33-year-old multiparous lady (G9, P8+0) presented at 11 weeks of gestation with recurrent vomiting and abdominal pain. She did a similar presentation to another facility at week 5 of gestation and was found to have bilateral hydronephrosis hence double J ureteric stents inserted. Upon initial assessment she had evidence of acute kidney injury with no significant obstructive uropathy on ultrasound. She was diagnosed with hyperemesis gravidarum, but symptoms persisted despite medical management. Abdominal imaging was repeated and revealed development of ascites and right solid adenexial mass. Paracentesis was done at week 12 of gestation and fluid analysis revealed large mucinous malignant cells. The decision was made

to proceed with upper endoscopy which revealed an infiltrating mass in the stomach with pyloric stenosis in addition to HSV and candida esophagitis. Histopathology confirmed poorly differentiated invasive carcinoma with signet ring cells. After MDT discussion and considering the aggressive nature of the tumor, it was recommended to terminate the pregnancy and start palliative chemotherapy. She had an abortion at week 13 of gestation. Unfortunately, she succumbed to her illness within 3 months of her diagnosis. **Conclusion:** Krukenberg tumor presentation has nonspecific gastrointestinal manifestations and can be misdiagnosed as hyperemesis gravidarum during pregnancy. Clinicians should keep a low threshold to proceed with endoscopic assessment in the presence of ovarian enlargement in young women.

Keywords: Krukenberg, ovarian, gastric cancer, pregnancy

RC161

Center for Applied and Translational Genomics (CATG) – An Introduction

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Introduction: The Center of Applied and Translational Genomics (CATG) is a first-of-its-kind, multi-omics research center in Mohammed Bin Rashed University (MBRU), Dubai, UAE. Recently founded in January 2024 as an integral part of Dubai Health's vision of biological discovery and advancement in biomedical research, CATG has transformed rapidly into a cutting-edge facility specializing in genomics, transcriptomics, proteomics, and metabolomics with highly advanced equipment and a specialized team of scientists. **Methods:** CATG is equipped with an array of advanced technologies. This includes three PacBio Revio platforms for HiFi long-read Whole-Genome sequencing, two ONT Promethion devices for transcriptome sequencing, and an Illumina NextSeq 2000 for targeted exome sequencing. The facility also features a 10X Genomics Chromium X controller for single-cell omics studies and an Orbitrap Exploris 480 Mass Spectrometer for detecting thousands of proteins and metabolites. Additionally, CATG boasts robust computational resources with advanced CPU and GPU systems, managed by skilled bioinformaticians for data analysis. **Results:** To date, CATG has sequenced a substantial number of long-read whole genome samples with 30X coverage. These samples are set to undergo comprehensive multi-omics analyses.

The center's primary objectives include generating detailed genomic insights from multi-omics studies of the Emirati population, creating a pan-genome reference for the Arab population, exploring the molecular genetic causes of rare diseases in the UAE, and advancing cancer genomics through in-depth studies of cancer patients. Beyond its flagship projects, CATG is open to global collaborations and provides multi-omics services to other researchers. Currently, it manages over 40 additional projects across various disciplines and has published 11 studies, with many more in progress. **Conclusion:** With its advanced technology and expert team, CATG is set to become a leading research center in the UAE. It aims to uncover complex biological processes, identify biomarkers, and translate genomic discoveries into actionable insights for precision healthcare.

Keywords: multi-omics, genomics, proteomics, transcriptomics, metabolomics

RC52

Cerebral Venous Thrombosis in an Adolescent Girl

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Introduction: Cerebral sinus venous thrombosis is quite an uncommon and potentially life-threatening condition in pediatrics. The symptoms can be nonspecific, making early diagnosis and management challenges. We hereby present a case of a 13-year-old girl, with a 1-year history of menorrhagia, presented with acute right-sided weakness, headache, and other associated symptoms. **Methods:** After initial stabilization, urgent CT Brain neuroimaging showed features of cerebral sinus thrombosis. This was followed by an urgent CT venogram which showed filling defects involving the deep cerebral veins, vein of Glen, and straight sinus. Initially, she was admitted to PICU for observation and unfractionated heparin was started. **Results:** MR venography showed deep cerebral venous thrombosis with acute infarcts in some areas. Her Hb was 7.3g/dL, MCV was 56.7fL, Ferritin was <2ng/mL, Transferrin was 3.9g/dL. She received pRBCs transfusion. Her thrombophilia screen was normal. Genetic tests showed factor V Leiden mutation, and *MTHFR* gene mutation were sent to Al Jalila Genomic Center. Both the Covid 19 antibodies were high - Anti IgG (2.40) and Anti S IgG (3655 AU/mL). She started showing improvement in the following days. **Conclusion:** In the setting of altered mental status or neurological examination, a high level of suspicion for this diagnosis is warranted. We hope that our case report will benefit the healthcare providers with the knowledge of cerebral venous thrombosis and its possible association with severe

iron deficiency anemia, post-Covid-19 hypercoagulable state, and highlights the need for prevention and management of iron deficiency anemia. Whether everyone who gets Covid 19 infection, should get a short course of anticoagulation to prevent thrombotic events, needs more research in terms of risks vs benefits.

Keywords: cerebral venous thrombosis, iron deficiency anemia, COVID-19 infection

RC30

Challenging Case of Mantle Cell Lymphoma (MCL) Presenting in Leukemic Phase, Retinal Hemorrhage, and GI Bleeding

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Background: Mantle cell lymphoma (MCL) is a mature B-cell NHL with variable clinical course. This case report focuses on the challenges in diagnosis and management. **Case Report:** A 61-year-old male with hypertension, presented with symptoms of anemia and was found to have leukocytosis, anemia, and thrombocytopenia with suspected 84% blast. Flow cytometry from the peripheral blood was consistent with MCL. His course was complicated by GI bleeding (GIB), retinal hemorrhage, and atrial fibrillation requiring cardioversion and anticoagulation. He was treated on a triangle regimen with excellent response to treatment and normalization of WBC and decreased requirement for blood products. This is a challenging case of leukemic phase MCL in a 61-year-old male who had a complicated hospital course but responded well to treatment despite the challenges of anticoagulation in a patient presenting with GI bleeding and retinal hemorrhage.

Keywords: aggressive lymphoma, Mantle cell lymphoma, malignant hematology

RC313

Clinical Audit: Iron Deficiency Anemia (IDA) Screening in One-year Old Patients, Tertiary Center Experience

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Introduction: Given the potential adverse neurodevelopmental outcomes, the American Academy of Pediatrics (AAP) recommends universal screening for anemia around the age of 12 months. This can be done through measuring hemoglobin (Hb) concentration and assessing risk factors linked to IDA. If the Hb level is <11.0 mg/dL, further evaluation is required to establish IDA as a cause of anemia. This includes measurement of serum ferritin, CRP, or reticulocyte hemoglobin concentration. **Methods**: We reviewed the charts of all patients aged 12-13 months visiting general pediatric OPD in AJCH from June 1, 2023 to Dec 31, 2023 to check if proper IDA screening was done for them. **Results:** A total of 132 patients aged between 12 and 13 months visited AJCH general pediatric OPD between June and December 2023. Less than half of the target population was screened for anemia. **Conclusion:** The IDA screening timing coincides with the 1-year vaccination, hence coupling them in a single visit would raise the screening rate. As vaccination is a routine process with a high compliance rate

Keywords: IDA, hemoglobin, iron

RC282

Clinical Characteristics of Patients Receiving Hemodialysis in Dubai: A Retrospective Case Series

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Background: Chronic kidney disease affects approximately 4% of men and 3% of women in the UAE. In 2015, the dialysis prevalence in Abu Dhabi was estimated at 370 per million population, with projections indicating an increase. Patients starting dialysis as emergencies, lacking established vascular access like arteriovenous fistulas, face worse outcomes than those who begin electively. It is believed that many patients in the UAE start dialysis under emergency conditions, contributing to higher morbidity and mortality rates. This study aims to describe the clinical and demographic characteristics of chronic hemodialysis patients at a dialysis center in Dubai, identifying areas for intervention and future research. This phase of data collection will expand to cover two large dialysis centers. **Methods:** A descriptive demographic approach with retrospective data collection was employed, focusing on patients receiving

chronic hemodialysis from January 1 to December 31, 2022. The analysis encompasses 156 patients, with the current report drawn from the first 59 reviewed records. **Results:** Of the 59 patient records analyzed, the mean age was 56.9 years, with 37 (62.7%) men, 42 (71%) UAE nationals, and 10 (17%) of other Arab descent. Kidney disease causes included 26 (44%) diabetic nephropathy, 3 (5%) hypertensive nephropathy, and 23 (40%) of unknown etiology, 12 of whom had diabetes. Additional causes included hereditary, congenital, and glomerulonephritis disorders. Notably, 25 (42.4%) patients were hospitalized within the prior year, primarily due to sepsis, cardiovascular conditions, and vascular access compilations. A majority, 38 (64.4%), were dialyzed via arteriovenous access, while 21 (35.6%) used tunneled catheters. **Conclusion:** This foundational study prepares for a more extensive exploration of clinical and demographic trends in Dubai's dialysis cohort. Notably, the prevalence of UAE nationals allows for potential biobanking and genetic research opportunities. The significant number of unidentified causes of kidney disease warrants further investigation, with implications for service development initiatives supported by the observed admission rates and vascular access methods.

Keywords: dialysis, demographics, clinical characteristics, Dubai

RC21

Clinical Utility of Genomic Investigations in a Middle Eastern Pediatric Gastroenterology Disease Cohort

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Introduction: Genetic testing advancements are crucial for diagnosing complex diseases, especially in our region with high consanguinity rates. This research highlights the role of genetic testing in predicting and managing pediatric gastrointestinal disorders, aiding in better diagnosis and treatment strategies. **Methods:** We analyzed 74 patients between April 2019 and December 2023. The data were retrieved from

electronic medical records. **Results:** The cohort age ranged from 2 weeks to 18 years, with an average of 3 years. Males predominated (64.8%), and the patients represented 18 nationalities, predominantly Emiratis (51.4%). Clinical presentations categorized patients into liver disease (35%), inflammatory bowel disease (23%), chronic diarrhea (23%), failure to thrive (10.8%), recurrent pancreatitis (5.5%), and polyposis (2.7%). Genetic testing yielded positive results in 52.7% of cases and was highest in chronic diarrhea patients (76.4% positive). Additionally, four patients carried a novel mutation on a gene not reported fully in the literature. Unexpected diagnoses were found in 10.8% of cases. **Discussion**: Considering the clinical context and diagnostic/positive genetic results, alterations in clinical approach and management were noted in 89% of cases. Genetic testing was vital in diagnosing and managing gastrointestinal disorders, guiding treatment decisions, organ transplant considerations, medication choices, cancer risk assessment, and screening for associated conditions across various patient groups, necessitating regular surveillance and genetic screening for family members. **Conclusion:** Our study emphasizes the impact of genetic testing on changing management strategies and providing valuable prognostic insights. Additionally, we highlight the identification of novel gene mutations associated with cholestasis. Genetic testing still holds a significant promise, offering potential cures and improved patient outcomes.

Keywords: genomics, pediatric gastroenterology, clinical utility, novel gene mutation

RC123

Clinical Utility of Whole Genome Sequencing in a Globally Under-represented Pediatric Population

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Introduction: The benefits of whole genome sequencing (WGS) in underserved populations have not been widely explored. Despite its well-documented benefits, genetic testing is disproportionally inaccessible to patients in several geographical regions due to several barriers, including cost, and lack of appropriate infrastructure. Al Jalila Children's Hospital collaborated with the iHope Program; an initiative launched by Illumina to reduce barriers in accessing genetic testing for underserved pediatric populations. **Methods:** Eligibility criteria were established to help identify patients with clinical findings highly suggestive of a

monogenic genetic condition, and also if the patient was unable to access genetic testing due to financial barriers. **Results:** In total, 13 patients from the UAE, India, Morocco, Yemen, Philippines, Pakistan, and Sudan received a diagnosis, representing a diagnostic yield of 48%. Seven patients (26%) had variants of uncertain significance (VUS) that were not considered diagnostic while the remaining seven patients (26%) had negative results. Of the 13 cases with positive findings, 10 (77%) had pathogenic sequence variants consisting of 7 recessive, 2 dominant, and 1 X-linked conditions. Three (23%) had pathogenic copy number variants (CNVs) ranging from 1.4Mb to 9.88Mb in size. One patient had a dual diagnosis consisting of both a sequence and copy number pathogenic variant. Clinical utility for positive reports included a direct impact on medical management, family planning decisions, and the cessation of unnecessary testing. **Conclusion:** One of the obvious benefits of WGS is its ability to identify both sequence and CNVs in a single assay. In our study, 23% of the positive findings included CNVs, which could have been missed by standard sequencing testing or would require costly, and time-consuming stepwise testing for sequence and CNVs. The relatively high diagnostic yield demonstrates the necessity to reduce the barriers to access WGS testing for families with limited financial resources.

Keywords: genomics, precision medicine, pediatrics

RC304

Co-infection with Malaria and Dengue During Pregnancy: A Case Report

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Introduction: Co-infection with vector-borne diseases such as malaria and dengue fever during pregnancy is a rare but serious clinical scenario, posing significant risks to both the mother and fetus. Prompt diagnosis and appropriate management are crucial to prevent complications and improve outcomes. **Case Report**: We report a case of 27-year-old primigravida, 12 weeks pregnant, who was presented with high fever, chills, generalized body aches for 4 days, and mild epistaxis for one day. She had no recent travel history but reported a previous episode of undiagnosed fever one month prior, which had been treated empirically. On admission, she had high-grade fever and tachycardia. There was no rash on examination. Laboratory tests showed dengue IgM positive and COVID negative. Her hemoglobin was 9.5 g/dl, her

platelet count was critically low at 52,000, and she had high inflammatory markers. She was admitted for close monitoring and managed with intravenous fluids, antipyretics, and supportive care for dengue fever. She was closely observed for any bleeding tendency. On the 2nd day of admission, she was found to have scattered petechial spots on the upper back and chest, and her platelet count dropped to 41,000. Since she was not getting better, she was tested for malaria, and co-infection with *Plasmodium vivax* malaria was confirmed. A multidisciplinary team, including a medical specialist and IDU, was involved in her care, and she was treated with chloroquine. Daily complete blood count and platelet counts were performed, and liver function was assessed every other day. Ultrasound showed a single viable intrauterine pregnancy of 13 weeks. The patient showed gradual improvement without any significant adverse events. After stabilization, she was discharged in good condition after 6 days of admission, with follow-up care arranged to ensure maternal and fetal well-being. **Conclusion:** This case highlights the importance of considering differential diagnoses in patients with similar clinical manifestations. Co-infection can complicate the clinical picture, potentially delaying diagnosis and treatment. Early recognition, careful monitoring, and a multidisciplinary approach are essential for achieving successful outcomes in cases of malaria and dengue co-infection during pregnancy.

Keywords: dengue fever, malaria, pregnancy

RC15

Comparative Study Between Short-time Bed Rest and Immediate Ambulation After Embryo Transfer Procedure: A Randomized Controlled Trial

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Background: Bed rest (BR) is commonly advised after embryo transfer (ET) in the belief that restricting physical activity might reduce embryo expulsion. This assumption still awaits scientific evidence. Published meta-analyses have reached conflicting results. **Methods:** This randomized controlled study evaluated the effect of 10 min of BR after ET versus immediate ambulation on ongoing pregnancy defined as viable pregnancy at > 10 weeks of gestation. Secondary outcomes were clinical pregnancy and miscarriage rates. Randomization was carried out using computer-generated random numbers and the use of sealed envelopes stratified by age that were opened immediately before ET. Doctors performing the transfer were oblivious to the selection. The study was conducted in a government IVF center in Dubai-UAE between July 2021 and March 2024 and included 156 patients aged between 20 and 40 years old. Couples could enroll once in the study. Fresh and frozen ETs were included. Exclusion included women with diminished

ovarian reserve (AMH < 1.2 ng/ml or AFC < 7), unilateral or bilateral hydrosalpinx, bilateral endometriomas, adenomyosis, large uterine fibroid (over 3 cm), fluid or polyp in the uterine cavity, chronic endometritis, and history of recurrent >2 pregnancy losses or implantation failures. The study was registered with Clinical Trial Registration Number: NCT05148624. **Results:** No significant difference was observed in the ongoing pregnancy between BR (61.5%) and immediate ambulation (59.7%). Two patients changed their minds after the embryo transfer. Intention to treat analysis showed a relative risk of 1.03 CI (0.87–1.19). In addition, no significant difference was observed in the miscarriage or clinical pregnancy rates. **Conclusion:** BR after ET does not improve the ongoing pregnancy.

Keywords: bedrest, immediate ambulation, embryo transfer

RC213

Comparison Between Clinician and Self-collected Sampling for HPV Screening: A Pilot Study

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Background: Cervical cancer is one of the leading causes of cancer deaths in women in UAE, with most deaths attributed to late detection of this cancer. 99% of cervical cancer cases are linked to infection with 'high-risk' types of human papillomavirus (HPV), which is sexually transmitted. HPV detection in cervical samples has proven its superiority to cervical cytology in primary screening of cervical cancer in many studies. Self-collection of samples is reported to be highly acceptable and preferred by most women, worldwide. But the self-sampling for HPV is not in practice in UAE so far. This pilot study was conducted to compare the efficacy of self-collected samples versus clinician-collected samples in the detection of HPV by PCR, by using a self-sampling device (Qvintip, Aprovix, Stockholm, Sweden). Also, the patient-reported acceptability and preference for the sampling technique were determined using a feedback form. **Methods:** One hundred women attending the gynecology clinic belonging to the age group of 25-65 years, were randomly chosen to participate in the study after informed written consent. The self-collected sample was collected by the woman in the hospital, followed by clinician sampling using Qvintip sampling device. Samples were sent to the laboratory immediately for analysis using Aptima HPV assay. All participants were given a short questionnaire after the sampling procedure, regarding the acceptability and preference of the sampling technique. **Results:** Our results showed that the HPV

positivity rates between the self-collected and clinician-collected specimens using Aptima HPV assay of E6/E7 mRNA for 14 high-risk types, is in fair agreement. More than 90% of women were happy with the self-collection technique. **Conclusion:** HPV self-sampling will make screening more accessible and acceptable to women. It can be offered to needy women in nonclinical settings in the comfort of a home environment, which will definitely help in screening the women who are hesitant to come to the hospital, and it can also be used to screen a large population without using hospital resources.

Keywords: HPV, self-sampling, clinician collect, cervical cancer, cancer screening

RC289

Comparison of Apical Extrusion of Intracanal Bacteria by Various Glide-path Establishing Systems: An In vitro Study

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Introduction: Different instruments and techniques used for root canal preparation are associated with debris extrusion, which contains dentin chips, pulp tissue, micro-organisms and/or irrigants, into the peri-radicular tissue. This extrusion may potentially result in post-operative flare-ups or lead to the development of ulcerative and tissue necrosis processes. Various instrumentation techniques have been associated with different amounts of apical debris extrusion. Various nickel-titanium (NiTi) rotary glide-path instrument systems, such as G-File (Micro- Mega, Besançon, France), ScoutRace (FKG Dentaire SA, La Chaux-de-Fonds, Switzerland), PathFile (Dentsply Maillefer), One G (Micro-Mega), and ProGlider (Dentsply Maillefer), have been introduced. The G-File rotary instruments and the PathFile system reduced the debris extrusion than the manual preparation using stainless steel instruments. The ProGlider system had lower debris extrusion than the PathFile and One G system. The claim that the weight of extruded debris, may increase the severity of the inflammatory response is not well rationalized as “it is likely that not only the quantity of debris but also the type and virulence of bacteria and the resistance of host tissue are

important". Therefore, considering the importance of this parameter and the biologic efficacy of glide-path establishing instrument during root canal preparation, the purpose of this in vitro study was to assess the amount of apically extruded bacteria during the glide-path preparation with a manual stainless-steel file and various rotary glide-path systems. **Methods:** Sixty mandibular first molar teeth were used to prepare the test apparatus. They were decoronated, blocked into glass vials, sterilized in ethylene oxide gas, infected with a pure culture of *Enterococcus faecalis*, randomly assigned to 5 experimental groups, and then prepared using manual stainless-steel files (group KF) and glide-path establishing NiTi rotary files (group PF with PathFiles, group GF with G-Files, group PG with ProGlider, and group OG with One G). At the end of canal preparation, 0.01 mL NaCl solution was taken from the experimental vials. The suspension was plated on brain heart infusion agar, bacterial colonies were counted, and the results were given as a number of colony-forming units (CFU). **Results:** The manual instrumentation technique tested in group KF extruded the highest number of bacteria compared to the other 4 groups ($p < 0.05$). The 4 groups using rotary glide-path establishing instruments extruded similar amounts of bacteria. **Conclusion:** All glide-path establishment instrument systems tested caused a measurable apical extrusion of bacteria. The manual glide-path preparation showed the highest number of bacteria extruded compared to the other NiTi glide-path establishing instruments.

Keywords: bacterial extrusion, debris extrusion, glide-path, manual instrumentation, nickel-titanium rotary file

RC28

Comprehensive Evaluation of Anastrozole in Pediatric Height Management and Bone Health: A Real-world Data

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Introduction: Achieving optimal height during pediatric and adolescent growth is vital for a child's self-esteem and future success. Aromatase inhibitors, particularly Anastrozole, are used to enhance final adult height in peripubertal boys by blocking the conversion of androgens to estrogens, a key factor in growth plate closure. Despite their potential benefits, concerns exist regarding the adverse effects of aromatase inhibitors on bone health, given estrogen's crucial role in maintaining bone density. The specific impact of Anastrozole on bone health in this demographic remains under explored. This study aims to evaluate the effectiveness of Anastrozole in increasing expected final adult height (AHP) in adolescent males with idiopathic short stature and to examine its effects on metacarpal bone health parameters, including

the metacarpal index (MCI) and bone health index (BHI), using BoneXpert software before and 2 years after treatment. **Methods:** A retrospective observational cross-sectional study was conducted, analyzing electronic medical records of 30 boys under 18 years old who received anastrozole treatment from January 2018 to January 2022. Exclusions were made for patients with chronic conditions or prior growth hormone treatment. Data on demographics, anthropometric measurements, puberty stage, and bone age were collected. Bone age, AHP, MCI, and BHI were assessed using automated analysis. Statistical evaluations were performed using paired T-tests at $P < 0.05$. **Results:** Participants began treatment at a mean age of 13.5 years. Height gain averaged 8.3 cm after 1 year and 13.62 cm after 2 years, with significant increases in AHP ($P < 0.05$). Importantly, Anastrozole did not negatively impact metacarpal bone health, showing significant improvements in MCI and BHI. **Conclusion:** Anastrozole effectively increases expected final adult height in adolescent males with short stature without compromising bone health. Further research is needed to validate these findings and explore long-term implications.

Keywords: aromatase inhibitors, predicted adult height (AHP), metacarpal index (MCI), bone health index (BHI)

RC71

COVID-19 Mortality in those Over and Under 65 in a Rural ICU Setting

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Introduction: When considering research into how COVID-19 affects individuals, it is an accepted belief that those who are elderly will fare worse. This is a common stigma in all fields of medicine; however, our center anecdotally suggested that the elderly were not at a significantly increased risk of mortality. **Methods:** Eligible patients were recruited and split into two groups: over and under 65. Percentage mortality, morbidity using APACHE II, and duration of hospital admission were assessed. Statistical analysis was done using SPSS. **Results:** Percentage mortality of the total population was 16.67% (N=12). In the under 65's arm the mortality percentage was 12.5% (N=5) and the percentage mortality of the over 65's was 21.9% (N=7); Chi-squared=1.13 (p-value 0.29). No statistical significance was observed between mortality in the under and over 65's arms. The average time to discharge was 20.64 ± 1.98 days. The average time to discharge in the under 65's was 19.83 days ± 2.64; the average time to discharge in the over 65's group was 21.66 ± 3.04; unpaired t testing= 0.65. The average APACHE II score was 10.52 ± 0.77. The mean APACHE II score for the under 65's arm was 8.24 ± 0.95, while the mean APACHE II score for

the over 65's was calculated at 13.2 ± 1.04: unpaired t testing = 0.0008, showing a significant difference between morbidity in the two arms. **Conclusion:** Overall, mortality was not significantly different, nor was their duration of stay. There was a significant difference in their morbidity; however, both groups had similar healthcare outcomes. There is a need to better evaluate rural populations and understand that their health outcomes often differ from the global population.

Keywords: COVID-19, mortality, morbidity, health outcomes

RC81

DAISY Award Value Added to Nurse's Performance When They Needed Most

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Background: Although nurses have worked tirelessly with great courage, dedication, and professionalism, putting their own health at risk to save lives and ensure continuity of care during COVID 19, they were only rewarded with long working hours and obliged to sacrifice holidays and leaves to compensate for staffing shortages. This all resulted in significant physical, mental, and emotional exhaustion. Leaders in Children's Specialty Hospital identified the need to acknowledge the extraordinary efforts of nurses, so they introduced the DAISY Award. The DAISY Award is a powerful tool to provide meaningful recognition for supporting nurses' satisfaction and is an integral component of a healthy work environment. It serves as a reminder that a nurses's work does make a difference. At AL Jalila Hospital, we initiated the DAISY AWARD, a quarterly recognition program in March 2021 to celebrate outstanding nursing care. We have a committee that collaborates on criteria that emphasize compassion, clinical expertise, and patient advocacy. This effort not only boosts morale among nurses but also enhances patient satisfaction by promoting a culture of excellence in patient care across all departments. The implementation of the Daisy Award through shared governance has successfully met its objective of recognizing and promoting excellence in nursing care. Moving forward, ongoing evaluation and refinement of the award criteria can further enhance its impact on patient outcomes and nursing practice, ultimately fostering a culture of continuous improvement in healthcare delivery.

Keywords: DAISY Award, children, staff wellbeing, nursing performance

RC209

DeepEGFR: A Deep Learning-based Hybrid Framework for Interpretable Prediction of EGFR Inhibitors

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Introduction: The epidermal growth factor receptor (EGFR) plays an important role in controlling cell processes like division, movement, survival, and even cancer development. When EGFR is overexpressed, it becomes a good target for cancer treatments, as it is mainly found in tumors and not normal cells. However, the current EGFR inhibitors often face resistance, which limits their effectiveness. This highlights the need for better drug development. **Methods:** In this study, a new machine learning tool called DeepEGFR is introduced to predict the effectiveness of new EGFR inhibitors using only the SMILES chemical notation. DeepEGFR can pick up on important features of these inhibitors. First, we created a dataset of active and inactive compounds targeting EGFR from the ChEMBL database. Then we developed baseline models using known molecular descriptors and machine learning methods. These models helped to create features that were combined into a final model using a type of neural network called a one-dimensional convolutional neural network (CNN). **Results:** The results showed that DeepEGFR is highly accurate, with a 90% success rate in identifying EGFR inhibitors. The model also provides insights into what makes a compound effective, using a method called SHapley Additive exPlanations (SHAP). Further analysis revealed that certain chemical structures, like aromatic rings and nitrogen-containing groups, are important for inhibiting EGFR. **Conclusion:** Overall, DeepEGFR could become a helpful tool for identifying new EGFR inhibitors from many untested compounds.

Keywords: EGFR, cancer development, machine learning

RC204

Defying the Odds: A Case Report of ACTG2-related Megacystis-microcolon-intestinal Hypoperistalsis Syndrome with Complete Recovery

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Introduction: Visceral myopathy is a rare and complex disorder primarily impacting the gastrointestinal and urologic systems. Among its manifestations, megacystis-microcolon-intestinal hypoperistalsis syndrome represents the most severe form. Typically, this condition has a grim prognosis, with all reported cases necessitating lifelong parenteral nutrition, frequent surgical interventions, and intermittent catheterization. **Case Presentation**: We report the case of a 3-month-old female infant diagnosed with ACTG2-related megacystis-microcolon-intestinal hypoperistalsis syndrome. This diagnosis followed prenatal findings of megacystis and polyhydramnios. The infant presented with oliguria, non-bilious vomiting that evolved into bilious emesis, loose stools, and a fever over 2 days. A gastrointestinal panel identified enteroaggregative *Escherichia coli*. Imaging revealed distended bowel loops but no evidence of ischemia, microcolon, or obstructive lesions. The distended bladder required temporary catheterization, which was later removed. Initial parenteral nutrition was discontinued after 8 days as the infant tolerated oral feeds, well. The hospitalization was further complicated by a urinary tract infection and thrombocytosis; however, the patient was ultimately discharged on full oral feeds with spontaneous urine output. **Conclusion:** Despite the generally grim prognosis associated with visceral myopathy and megacystis-microcolon-intestinal hypoperistalsis syndrome, this case demonstrates that favorable outcomes are achievable. The patient was able to avoid surgical interventions, long-term parenteral nutrition, and intermittent catheterization, highlighting the potential for complete recovery in select cases.

Keywords: megacystis-microcolon-intestinal hypoperistalsis syndrome, parenteral nutrition, pseudoobstruction, visceral myopathy, Berdon syndrome

RC07

Depression Screening and its Prevalence Among Adults: Single-center Study

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Introduction: Depression is a prevalent and one of the most common mental health problems, worldwide that disturbs the physical, mental, and social well-being, causes persistent low mood, a sense of despair, and the loss of interest in daily activities. Depression affects about one in four people at some point in their lives. The number of depressive patients approaching health facilities for treatment and supportive care has enormously increased. The aim of the study was to determine the prevalence of depressive symptoms among adult patients attending family medicine clinic at Hatta Hospital. **Methods:** A cross-sectional study was conducted among adults aged 18 and above. A PHQ-9 questionnaire was used for screening depression, assessing severity, and to determine the prevalence. Demographic data and associated conditions were recorded on proforma after exclusion criteria. **Results**: A total of 378 patients were screened, 217 (57.4%) were males and 161 (42.6%) females. Depression was found in 93 patients (24.6%). Males were 30% and females 70% among depressed. In terms of severity 79.6% were mild and 19.4% moderately depressed in our study. Associated conditions such as obesity (p-value 0.012), hypertension (p-value 0.013), and hypothyroid (p-value 0.018) were significantly found in depressed patients. **Conclusion:** The depression rate of screened patients appears to be high compared to rates reported in other studies. Females had high rates, almost double, compared to males. This is seen in, almost, all regional and international studies with high female preponderance. Some associations in patients with depression and chronic illness were seen.

Keywords: depression, PHQ-9, obesity, hypertension

RC101

Determining Anatomically Safe Corridors for Placement of Lateral Mass Screws in the First Cervical Vertebra of the Emirati Population: A CT Study

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Background: The first cervical vertebra (C1) consists of an anterior arch, a posterior arch, and a lateral mass. Instrumental fixation of the lateral mass for stabilizing C1 is required in several conditions of atlantoaxial instability. C1 bears a complicated relationship with adjacent neurovascular structures such as the vertebral artery and cervical spinal cord, which are at risk of injury in a misplaced screw. The objective of the study

was to identify safe screw trajectories, screw dimensions, and bony corridors for fixation of the C1 lateral mass in the Emirati population. **Methods:** Computed tomography (CT) images of the cervical spine in 160 Emirati adults, >18 years (M=80; F=80) were reviewed in the Department of Radiology, Rashid Hospital, Dubai. Morphometry parameters relevant to pedicle screw fixation were studied. **Results:** We studied screw trajectories and safe bony corridors in three recommended lateral mass fixation techniques with entry points at the following bony landmarks: a) Center of lateral mass, b) Junction of inferomedial margin of the posterior arch and lateral mass, c) Through posterior arch. Screw entry at the center of the lateral mass commonly results in bleeding from the adjacent venous plexus and occipital neuralgia due to injury of the C2 nerve. We recommend the use of 4.0 mm titanium pedicle screws with lengths 18-20 mm for the former two entry points, and 28 mm for the latter entry point. A medial angulation of about 15˚ at the first and third entry points would allow maximum bone purchase. **Conclusion:** To the best of our knowledge, this is the first study that reports on the feasibility of C1 pedicle screw placement in the Emirati population. Pre-operative knowledge of the above findings would help the surgeon in greater precision, minimizing the risk of inadvertent injury to neurovascular structures in the vicinity of C1 lateral mass.

Keywords: cervical, vertebra, lateral mass, screw, Emirati

RC200

Development of Optimal Proteomics LC-MS/MS Acquisition Methods – Center for Applied and Translational Genomics

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Introduction: Discovery-based label-free proteomics has proven to be a powerful, high-throughput technique for understanding systems at the molecular level and has enabled a myriad of new research discoveries: from new biomarkers to understanding drug mechanisms, cell type development, and personalized patient prognostics. Here, we report the implementation of existing techniques and the development of a novel DIA acquisition method, capable of identifying and quantifying >8000 proteins in some sample types. **Methods**: We used Orbitrap Exploris 480 with a Vanquish Neo autosampler and uHPLC system to analyze a commercially available HeLa cell digest. We benchmarked our system against

published, established data-dependent acquisition techniques to test the functionality of all systems. We subsequently developed our own data-independent acquisition technique method and iteratively varied resolution, isolation widths, cycle time, automatic gain control targets, MS2 acquisition mode, and a customized isolation window scheme over repeated injections to obtain optimal settings in which the maximum number of protein IDs could be obtained while retaining low CV values. We also optimized settings for the FAIMS Pro2 Duo source. **Results:** Our system met and exceeded the reported number of peptides and proteins from existing methods, proving it was working optimally. We developed a hybrid DDA-DIA method with both MS1 and MS2-based quantitation. Our method increased observed identifications from 4000 proteins and 32,000 precursors to 6000 proteins and 56,000 precursors in a 24-minute run. When testing single cell-level sample amounts, we observed >600 proteins with room for further improvement. Using these methods to provide data for Dubai Health partner labs, we have observed experiments with ~15,000 protein groups and CVs of <10%. **Conclusion**: We demonstrated world-class proteomics capabilities using established methods and developed a novel DIA method to enable higher identification rates while maintaining low CVs.

Keywords: proteomics, method optimization, DDA, DIA, core facility

RC145

Diabetic Retinopathy Among Patients with Type 2 Diabetes Mellitus Attending Dubai Health Facilities in 2023

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Background: Diabetes is a major global health concern that imposes a financial burden on healthcare bodies worldwide. Diabetic retinopathy (DR), a complication of diabetes, is a leading cause of vision loss in adults. This study aims to estimate the prevalence of diabetic retinopathy and cataracts in diabetic patients visiting Dubai Health facilities. **Methods:** This retrospective descriptive study utilizes the Salama electronic medical records system to retrieve patient data. The study's participants included diabetic patients presenting to Dubai Health facilities in 2023. Participants underwent ophthalmologic screening for the following ophthalmic complications of diabetes: nonproliferative diabetic retinopathy, proliferative diabetic retinopathy, unspecified diabetic retinopathy, and diabetic cataract. **Results:** In 2023, a total of 6463 patients attending Dubai Health facilities were screened for ophthalmic complications in type 2 diabetes mellitus. The highest number of visits was due to type 2 diabetes mellitus with mild nonproliferative retinopathy, with 1911 cases (29.57%). The second most common complication was

unspecified diabetic retinopathy which showed 1583 cases (24.49%). This was followed by moderate nonproliferative retinopathy and proliferative retinopathy, diagnosed in 1126 (17.42%) and 1030 (15.94%) cases, respectively. The fifth most common complication was diabetic cataracts seen in 391 cases (6.04%). **Conclusion:** Mild nonproliferative retinopathy was the most common ophthalmic complication of type 2 diabetes in patients presenting to Dubai Health facilities. This underscores the importance of screening and reinforces the need for adequate glycemic control in diabetes.
Keywords: diabetes, retinopathy, Dubai Health, 2023

RC188

Diagnosis, Device Adherence and Clinical Outcome in Obstructive Sleep Apnea: A 12-year Retrospective Study

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Background: Obstructive sleep apnea (OSA) is often underdiagnosed due to complex identification methods and insufficient literature results. The present study aims to track the complete journey of care so as to identify the gaps in patient-device interaction, treatment adherence, and clinical outcomes. **Methods:** A retrospective observational study was performed over 12 years to assess the demographics, sleep study, and device usage patterns among 1949 patients. **Results**: There was a temporal escalation in the number and severity of OSA. There was an overall downward trend with AHI > 5 patients with average age decreasing progressively over the years. The Sankey plot showed OSA diagnosis in 83.4% of all patients, 33% of them purchased a device. However, only 19.7% of the total population adhered to the recommended device usage. Treatment led to a decrease in AHI < 5 among the 26.5% of the total patient cohort. On average, patients took 1.3 years to decide to purchase a device with a daily usage of 4.6 hr. Adherence was compliant in 59.8% of patients, and the time series plot showed an improving trend from 2017 onward. The regression analysis revealed an increasing BMI was associated with higher AHI that is consistent across different ages and genders. Males have a higher average AHI compared to females. **Conclusion**: Our study demonstrated an increasing trend in OSA diagnosis with delay in treatment initiation, varied adherence levels with increased prevalence in elderly, obese, and males. Sleep centers should implement routine screenings, regular health check-ups, educational programs, and use system-based referrals to sleep labs. Solutions to improve compliance using telemedicine, and better insurance coverage can profoundly impact treatment continuance, effectiveness, and device acceptance. The main limitation of our study was related to single-center retrospective design. Future multicenter studies are required in UAE to validate our findings that could influence device purchase and adherence.

Keywords: obstructive sleep apnea (OSA), CPAP, BiPAP, patient compliance, device usage

RC51

Diagnostic Yield of Urgent Head (Brain) CT Scans in Children Presenting with Acute Seizures to the Emergency Department in a Tertiary Care Center in Dubai, From August 2022 to August 2023

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Introduction: Seizures are one of the most common presentations to the emergency department. There is a rise in the use of CT scans for children presenting with seizures. Our study aimed to assess the diagnostic value of Brain CT scans in the ED in children presenting with seizures. **Methods:** A retrospective study at Al Jalila Children's Hospital from August 2022-August 2023, with the target population being children (0 – 18 years of age), who presented to the ED with seizure episode(s) and underwent a CT scan. **Results:** Out of 160 patients, 45% were previously healthy, 12.5% had a seizure disorder, 16.9% had other neurological disorders, and (7.5%) had a history of febrile seizure. The most common type was generalized tonic-clonic seizure (33.3%) and 19% had focal seizures. 15 patients had VP shunts. The results showed that 50% of all the CT scans post seizures were completely normal and 35.6% showed abnormalities in the brain. Few of the patients with abnormalities required urgent surgical intervention, and some required observation and follow-up imaging. **Conclusion:** With the successful completion of our study, we would like to spread light on the use of brain CT scans in emergency for seizures when clinically indicated and not as a routine investigation for seizures. We hope that this will help us optimize the use of CT scans to reduce radiation, overuse of medical resources, burden on radiologists, costs, and anxiety for patients and families.
Keywords: seizures, CT Brain, types of seizures, repeat imaging, focal seizures, status epilepticus

RC264

Digital Health Education for Family Physicians: Transforming Dermatology Care in Dubai

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Background: Family physicians in Dubai's primary health centers are the first point of contact for many patients with dermatological conditions. However, gaps in specialized dermatology knowledge often led to unnecessary referrals to specialists, overwhelming tertiary care centers, and causing delays in treatment. By introducing a comprehensive digital health education program, family physicians can be equipped with the skills to manage common dermatological issues, improving care efficiency and patient outcomes. The aim of this study was to evaluate the impact of a digital health education initiative, spearheaded by the Mohammed Bin Rashid University of Medicine and Health Sciences (MBRU), in enhancing dermatology expertise among family physicians, reducing referral rates, and improving dermatology care quality in primary health centers. **Methods:** The MBRU initiative will offer specialized dermatology tracks through a flexible, interactive digital platform, tailored for family physicians. These tracks will include modules on common skin conditions, differential diagnosis, and evidence-based treatment protocols. A select group of physicians will be awarded a postgraduate diploma, empowering them to serve as "dermatology champions" within their clinics. The program will leverage case-based learning, virtual simulations, and real-time teledermatology consults for practical applications. The initiative's effectiveness will be measured through pre- and post-training assessments of dermatology knowledge, referral rate tracking, and patient outcome surveys. **Results**: Based on similar global initiatives, we anticipate a 30-40% reduction in unnecessary dermatology referrals, freeing up specialist resources for complex cases. Dermatology knowledge among family physicians is expected to increase by 40-50%, according to pre- and post-training evaluations. Patients receiving dermatological care at primary health centers will report higher satisfaction, due to timely diagnoses and management at the primary care level. **Conclusion**: This digital health education initiative, delivered through MBRU, offers a unique, scalable model to address gaps in dermatology care in Dubai. By creating dermatology champions and embedding knowledge directly in primary care, the program aims to reduce referral rates and foster a more self-sufficient and responsive primary care system, enhancing overall patient outcomes in dermatology.

Keywords: digital health education, dermatology champions, primary care dermatology, teledermatology, referral reduction

RC165

Digital Simulation: A Useful Tool for Training Medical Students in Design Thinking? (Protocol)

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Introduction: The evolving healthcare landscape requires medical professionals to develop innovative problem-solving skills, particularly in designing patient-centered solutions. Design thinking (DT) offers a structured approach to address complex healthcare challenges, yet its integration into medical education remains limited. This study explores the effectiveness of digital simulations in enhancing medical students' understanding and application of DT principles. **Methods:** The primary research question is: "How effective are digital simulations in improving medical students' grasp of Design Thinking?" To address this, the study employs a pre- and post-evaluation model with students from the "Innovation and Technologies in Health Sciences" course at the Mohammed Bin Rashid University of Medicine and Health Sciences (MBRU). Using the SimProgress platform, students will engage in narrative-based simulations centered on clinical vignettes, guiding them through the five key stages of DT: empathize, define, ideate, prototype, and test. These scenarios will focus on developing patient-centered technologies and processes, enabling students to work on real-world healthcare problems, such as optimizing care delivery, enhancing patient experiences, and improving healthcare workflows. **Results:** Ninety students from the 2024-2025 cohort will participate in this trial. The study will assess the effectiveness of the simulation-based learning approach by comparing the pre- and post-intervention test scores, evaluating students' ability to apply DT concepts to team-based problem-solving challenges, and examining the correlation between simulation engagement and academic performance. **Conclusion:** Developing DT skills among medical students helps to cultivate a generation of healthcare professionals better equipped to navigate the complexities of modern healthcare environments and contribute to the development of innovative, patient-centered solutions.

Keywords: digital health, simulations, design-thinking, medical education

RC162

Dissecting the Pathogenic Variation Spectrum Underlying Rare Diseases in the Emirati Population: Implications for Preventive Population Screening Programs

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Introduction: The spectrum of genetic variation underlying rare diseases in many Middle Eastern populations remains largely unknown. In this study, we focus on the Emirati population as one of the many under-represented populations in the region. **Methods:** We curated 222 primary publications from the literature and our clinical genetic testing database for clinically significant variants in 432 and 352 Emirati families, respectively. Following the American College of Medical Genetics (ACMG) guidelines, 703 variants out of 1252 total variants met the criteria for pathogenic/likely pathogenic classification. Of particular interest, a significant portion of Emirati variants (52% and 30%) were absent from the gnomAD and ClinVar databases, respectively, highlighting the unique pathogenic landscape in this population. We attempted to catalog known and novel pathogenic and likely pathogenic coding variants across all human disease genes using exome sequencing data from 1194 Emiratis tested at our center. **Results:** We determined the frequency of coding pathogenic variants in 1194 Emiratis, most common variants were CYP21A2:c.955C>T, MEFV:c.2230G>T, ABCA4:c.5882G>A, and HBB:c.92+5G>C with 4.3%, 2.8%, 1.6%, and 1.6% allele frequencies, respectively. We then used the cumulative pathogenic variants counts in each gene, to estimate the frequency or carrier rate of each gene or disease. We show that the *CYP21A2* gene has the highest carrier rate (10.6%) in Emiratis followed by *HBB* (9.6%), *MEFV* (5.9%), and *ABCA4* (4.3%) genes, causing congenital adrenal hypoplasia, beta thalassemia, Mediterranean fever, and retinal disease, respectively. **Conclusion:** We highlight 482 genes with at least 1 clinically significant variant that might be used for population screening programs. Interestingly, 76.5% of those genes were not included on the gene list recommended by ACMG for carrier screening. Our data can be used to design high-yield preventive public health measures, such as premarital or newborn screening programs, and to empower equitable genetic screening programs across diverse ancestries.

Keywords: rare diseases, population screening, variation spectrum

RC98

A Draft Arab Pangenome Reference

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Introduction: Genomic diversity is pivotal in identifying population-specific health risks and guiding precision medicine strategies. However, Arab populations remain significantly under-represented in global genomic databases, limiting our understanding of genetic variability within this region. This study introduces the draft Arab Pangenome Reference (APR), a graph-based genomic resource aimed at bridging this gap. The APR provides critical insights into the genetic variability of Arab populations, contributing to effective clinical care and public health interventions. **Methods:** We conducted whole-genome sequencing of 53 individuals from diverse Arab ethnic backgrounds using cutting-edge sequencing technologies, including high-fidelity long reads (35.27X), ultralong reads (54.22X), and Hi-C reads (65.46X). These data were employed to construct contiguous, haplotype-phased de novo assemblies with high accuracy, achieving an average N50 of 124.28 Mb. **Results:** Our analysis uncovered 111.96 million base pairs of novel euchromatic sequences absent in existing human pangenome datasets, linear references, and other public datasets. Additionally, we identified 8.94 million population-specific small variants and 235,195 structural variants unique to Arab populations. Importantly, 883 gene duplications, including

the *TATA*-binding protein gene (TAF11L5), were uniquely duplicated in Arab populations, with 15.06% of genes linked to recessive diseases. These findings underscore the clinical significance of population-specific genetic variants **Conclusion:** The discovery of novel genetic sequences and population-specific variants emphasizes the importance of including under-represented populations in genomic studies. These findings highlight the importance of tailored genetic screening programs and the development of region-specific reference genomes to enhance the diagnosis and treatment of hereditary conditions prevalent in Arab populations. The APR represents a critical step toward improving precision medicine for Arab patients by providing a genomic resource that can aid in clinical decision-making, genetic counseling, and public health strategies. This work will contribute to a more inclusive understanding of human genetic diversity and support the delivery of personalized healthcare.

Keywords: Arab Pangenome, genetic diversity, population variants, genomic research, novel sequences

RC265

Drug-induced Myelosuppression and Alopecia Totalis in Ulcerative Colitis Patient: Unmasking the Enigma

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Background: Azathioprine (AZA) is a common drug used in inflammatory bowel disease (IBD). While myelosuppression is a recognized side effect of the drug. Severe myelosuppression along with alopecia are unusual and may hint at a defect in drug metabolism. **Case Presentation:** An 11-year-old female known to have psoriasis and moderate left-sided ulcerative colitis, was initially treated with sulfasalazine 500 mg TDS (51 mg/kg/day). At 3 weeks' follow-up, there was some improvement clinically but not in remission, her pediatric ulcerative colitis index (PUCAI) was 40. In view of normal TPMT activity, started on Azathioprine (AZA). After a month, she presented with hematemesis, with hair loss for the past 3 days. She had no fever and a PUCAI score of 0. On examination she had alopecia totalis, one bruise in left leg, with no lymphadenopathy, hepatosplenomegaly, petechia, or mucosal bleeding. The labs showed pancytopenia with absolute neutrophil count (ANC) of 70. As extensive workup came back negative, we discontinued her regular medications and started her on broad-spectrum antibiotics with ceftriaxone. Upon monitoring her counts, the ANC continued to drop, and 3 mg of pegfilgrastim was given as a single dose. She developed fever and repeated septic workup was sent, the antibiotics were upgraded

to piperacillin-tazobactam. Following that counts improved gradually with ANC of 1760 on discharge after 10 days, with no medications. Her 6Thioguanine level was within normal range. Genetic test for negative for polymorphism in *NUDT15* and *TPMT* genes. She was seen after 2 weeks of discharge, and her hair started regrowing, but had some blood in stool, her labs were improving, and she was started on oral and rectal mesalazine. **Conclusion**: Azathioprine-induced myelosuppression is a well-known side effect although it is peculiar to develop severe reaction with normal *TPMT* level and negative *NUD15* gene polymorphism. This can raise the concern of sulfasalazine-induced reaction or other causes.

Keywords: azathioprine, neutropenia, TPMT

RC104

A Dual-mode Targeted Nanopore Sequencing Assay for Comprehensive SMN1 and SMN2 Variant Analysis

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Introduction: Spinal muscular atrophy (SMA) is one of the most common recessive disorders for which several life-saving treatment options are currently available. It is essential to establish universal SMA screening and diagnostic programs using scalable, cost-effective, and accessible platforms to accurately identify all variation types, which are complicated by homologous *SMN1* and *SMN2* genes. We developed a dual-mode PCR-based target enrichment that generates 2.7-11.2 kb amplicons spanning exons 3-8 of the *SMN1* and *SMN2* genes as a proof-of-concept for any-length nanopore sequencing. **Methods:** We trained a variant calling model that utilizes paralog-specific sequences and read-depth data to accurately detect sequence and copy number variants specific to each gene. **Results:** We present results from the development, optimization, and external evaluation of this assay using over 750 samples, including cell lines, residual presumed normal blood donors, and patients with known *SMN1* and *SMN2* genotypes. The assay detects SNVs, indels, and CNVs with >98% accuracy across all sample sets, with a highly dynamic

throughput range, relatively fast turnaround time, and limited hands-on time. **Conclusion:** Together with the modest capital investment and consumable costs per sample, this assay can help increase access to SMA testing in low- and middle-income settings. We describe a PCR/Nanopore sequencing assay and a customized analysis pipeline for the comprehensive and accurate detection of variation at the SMA locus, and demonstrate its scalability, cost-effectiveness, and potential for the universal implementation of SMA screening and diagnostic programs.

Keywords: enrichment, nanopore sequencing, SMN1/2, SMA, carrier screening

RC255

Dupilumab-induced Myopathy and Enthesitis in a Patient Treated for Severe Atopic Dermatitis

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Background: Dupilumab is an interleukin 4 and 13 inhibitor used in the treatment of atopic disorders. It is the only approved systemic treatment for atopic dermatitis. It is a relatively safe drug, with common side effects like injection site reactions, conjunctivitis, and upper respiratory infections. Recently, dupilumab-induced arthropathy and enthesitis have been reported. Although musculoskeletal events were not observed during clinical trials. **Case Report**: We report a case of dupilumab-induced myopathy and enthesitis; in a 11-year-old boy who was treated for severe atopic dermatitis. Skin rash improved with the treatment, but he developed myalgia after the third dose. Pain was severe enough to impede movement and cause contractures later on; he was not able to walk or stand independently. Rheumatologic assessment, brain, and spine imaging were done to rule out other causes. Dupilumab was discontinued and he required physiotherapy to retrain the inactive muscles. Serial casting or release procedures helped him to restore some of his mobility and to regain the ability to walk by himself. **Conclusion:** Dupilumab is generally safe drug with a tolerable side effect profile. Nonetheless, severe arthropathy and myopathy can be serious side effects. A possible explanation can be the interaction between interleukins 4 and 13 with interleukin 17 and 23 axis. This warrants regular monitoring and follow-up, and discontinuation of the drug as the symptoms develop. However, more evidence is required to characterize the nature of dupilumab-induced myopathy and the associated factors around it. We highlight a serious and uncommon side effect of dupilumab, which was not reported in children before and can cause significant morbidity.

Keywords: dupilumab, enthesitis, dermatitis

RC18

Dysregulation of BCL3 Expression in Asthmatic and Lung Adenocarcinoma Epithelial Cells Identified Genes Associated Proliferation, Apoptosis, and GPCR Signaling Pathway Including LPHN1

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Introduction: BCL3, an atypical member of IκB family is known to be a cofactor of NF-κB in inflammatory response. Recent transcriptomic studies identified BCL3 as one of the transcripts significantly expressing in severe asthmatics and lung tumor tissues and suggesting an association between severe asthma and lung cancer, implicating high risk of cancer progression among severe asthmatic individuals with persistent inflammation. The present study attempts to shed light on some of the underlying mechanisms of such transition by employing both overexpression and silencing of BCL3 in normal, asthmatic bronchial epithelial and lung cancer cells. **Methods:** Normal (BEAS-2B) and asthmatic (DHBE) bronchial epithelial cells were subjected for overexpression of *BCL3* gene and the lung cancer cell line (A549) was subjected for silencing BCL3. The expression was assessed both at mRNA (qPCR) and protein (western blot) levels to validate the method. Upon validation, cells differentially expressing BCL3 were monitored for cancer hallmarks such as proliferation and apoptosis. A functional assay to determine the effect of BCL3 expression on NF-κB activity was performed. **Results:** The results indicated that BCL3 is involved in cell proliferation and inhibition of apoptosis, both known as cancer hallmarks. Furthermore, functional experiments showed the inhibitory effect of BCL3 expression on NF-κB activity. In addition, transcriptomic analysis based on the BCL3 overexpression suggested the activation of genes related to GPCR signaling, receptor tyrosine kinase, and downregulation of immune response-related pathways among asthma and lung cancer cells. BCL3 silenced cells showed upregulation of growth, GPCR signaling pathway,

whereas pathways related to the regulation of growth and interferon signaling were downregulated. More specifically, *LPHN1* was identified as a commonly modulated gene among both the overexpressed and silenced BCL3 showing potential association with BCL3. LPHN1, a member of GPCRs, is known to be an NSCLC prognostic indicator and recently established as a novel bronchodilator target in asthma. **Conclusion:** This study suggests a possible downstream interaction among BCL3 and LPHN1 in cancer initiation and progression among asthmatic epithelial cells.

Keywords: asthma, adenocarcinoma, proliferation, apoptosis and GPCR

RC138

Effectiveness of Audio-visual Education Prior to Coronary Angiogram and Angioplasty on Reducing Pre-procedural Anxiety Level and Improving Patient Level of Understanding

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Background: Cardiovascular diseases are one of the leading causes of morbidity and mortality all over the world. The diagnostic measures and treatment for cardiovascular disease, especially invasive procedures like coronary angiogram and angioplasty causes high levels of anxiety in patients. Most of the time patients lack accurate information about the procedures which may be due to the patients low literacy level, language barrier, or the method used to educate them. In this study, we see the effectiveness of audio-video education on reducing the pre-procedural anxiety level of the patient and improving the patient's level of understanding. **Methods:** A randomized controlled trial of targeted 110 ACS patients in whom half patients will be given verbal or written instructions (control group) and the rest with the audio-visual education (experimental group). A State Anxiety Inventory was used to measure the pre-and-post procedural anxiety level of the patient. Statistical analysis was done using SPSS software (Version 21). **Results:** No statistically significant differences were observed in pre-intervention anxiety scores between the control group (45.0 $\pm$ 4.5) and experimental group (45.8 $\pm$ 2.7), P - 0.243. However, there was a significant reduction in anxiety level in post post-interventional experimental group (43.3 $\pm$ 4.8) compared to control group (p-0.005). **Conclusion:** The pre-intervention level of anxiety experienced by the patient did not decrease after watching an educational video about coronary angiography and angioplasty. However, the patient's level of understanding about the procedure and post-discharge care has been significantly improved.

Keywords: audio-visual education, pre-procedural anxiety level, patient level of understanding

RC38

Effectiveness of Decarbonization and Energy Management Implementations in Public Healthcare Facilities in Dubai, UAE

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Introduction: Energy cost is always a challenge in all healthcare facilities across the globe. Offsetting energy bills shall retain the operational expenses of the healthcare facilities; therefore, the same can help the healthcare executives and leadership to provide quality healthcare at reduced prices to all the needy people. Moreover, a well-defined decarbonization strategy can lead to more quality care in achieving the journey of a 100% patient-care approach. **Methods:** Decarbonization and energy management opportunities shall be studied in all the existing and proposed healthcare facilities using energy optimization tools. A level 2 energy audit for the existing facilities can determine the need for energy management and thereafter selection of implementation based on capital investment based on return on investment criteria or using zero investment models with sustainability as service investors. For the upcoming or new assets, the journey of sustainability shall begin from the design stage itself by establishing a design charrette between the client consultant and the implementation contractor. Design charrette can contribute to a well-defined sustainability road map for the project at the construction stage as well as during operation. **Results:** The outcome of the facility level 02 energy audits can reveal the various directions for energy management implementation in the existing facilities. Design charrette can lead to a well-defined road map for the development of an energy-efficient facility with a long-term decarbonization strategy. The above two approaches can reduce the operational cost by up to 30% in public healthcare facilities under the Dubai health system. **Conclusion:** A structured approach of energy malmanagement and decarbonization in the existing and proposed healthcare facilities leads to highly efficient healthcare facilities which can compete internationally.

Keywords: decarbonization, energy managment, ESG, sustainability, healthcare facilities

RC135

Effectiveness of Real-time Feedback Devices for CPR Training in Pediatric Population

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Introduction: The introduction of real-time feedback devices has provided an effective solution for improving CPR training. These devices offer immediate insights into the quality of CPR being performed by monitoring key performance metrics such as compression depth, rate, and chest recoil. Previous reports have shown that the use of real-time feedback devices in CPR training has significantly improved the quality of CPR delivered in adult populations. However, their effectiveness in pediatric CPR remains largely unexplored. Pediatric patients have unique anatomical and physiological characteristics that necessitate modifications in CPR techniques, making it crucial to investigate whether real-time feedback devices can similarly improve CPR performance in this population. This project aims to evaluate the effectiveness of real-time feedback devices in improving CPR training outcomes for the pediatric population. **Methods: T**he study assessed the potential advantages of integrating feedback technology into pediatric CPR training, by comparing key CPR performance metrics between groups trained with and without feedback devices. The research utilizes a randomized controlled trial design, conducted in Dubai Health hospitals, with participants randomly assigned to either an intervention group using real-time feedback devices and a control group receiving standard training without feedback devices. **Results:** Statistically significant differences were observed in CPR performance and quality between both groups in terms of chest compression fraction (CCF) and depth ($p \leq 0.001$). **Conclusion:** Real-time feedback devices significantly improved the performance of the trainees and the quality of pediatrics CPR.
Keywords: CPR, real-time feedback device, CCF, pediatric CPR, CPR training

RC139

The Effectiveness of Self-directed E-learning on Nurses' Knowledge and Skill of Arrhythmia Interpretation in Cardiology Department, Rashid Hospital, Dubai 2023

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Background: Accurate ECG interpretation is a crucial skill for nurses. As the initial point of contact in patient care, nurses must swiftly and precisely recognize any deviation in ECG readings from the norm. Prompt and accurate intervention can greatly enhance patient's outcomes and overall effectiveness of the healthcare team. This study was carried out to assess the effectiveness of self-directed e-learning package on the knowledge and skill level of cardiology nurses concerning arrythmia interpretation and to evaluate the correlation of improvement and selected demographic variables. **Methods:** A quasi-experimental study with one group pre-test/post-test was carried out in Coronary Care Unit, Cardiac

Interventional Unit and Cardiology High Dependency Unit of Rashid Hospital in 2023 involving 50 nurses selected through purposive sampling. The data collection and demographic information were collected using two-parts structured validated questionnaire and results were analyzed using SPSS version 28.0. **Results**: Statistical analysis showed that there was an improvement of 15.92% in the knowledge scores after the teaching program which was statistically significant (t=-6.668, p<0.001). The mean pre-course test score was 47.12 (20-76) and the mean post test score was 63.04 (28-88). A significant correlation was observed between years of experience and knowledge improvement (p= 0.020). **Conclusion:** The study demonstrated that the self-directed e-learning package is an effective tool to improve the knowledge and skills of nurses in arrhythmia interpretation.

Keywords: self-directed e-learning, nurses' knowledge and skill, arrhythmia interpretation

RC177

Efficacy of Dexmedetomidine Infusion in Patients Undergoing Humerus Fracture Fixation Surgeries: A Randomized Controlled Study

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Introduction: Patients undergoing open reduction and internal fixation of shaft of humerus have moderate to severe pain in postoperative period for 48 hr, requiring postoperative PCA morphine infusion. Opioid-based patient-controlled analgesia (PCA) is well established and has been widely used for postoperative analgesia. Anesthetic management, such as intraoperative use of dexmedetomidine (DEX) has been reported to have morphine-sparing effect following general anesthesia surgeries. **Methods:** The present study is designed to compare the pro-analgesic effect of intraoperative dexmedetomidine with a loading and infusion dose on morphine-based patient controlled analgesia consumption in patients following humeral fracture fixation surgeries under general anesthesia. Patients aged 18-60 years and BMI< 35 categorized as ASA I and II posted for isolated humerus fixation surgery will be included in the study. Patients allergic to morphine, on psychiatric medications, and first-degree heart block will be excluded. All the patients in both groups will receive general anesthesia with standard monitoring and balanced general anesthetic technique which will include induction with Propofol 1-2 mg/kg IV in titrated doses, Fentanyl 2 mcg/kg IV, and muscle relaxation with Cisatracurium 0.2 mg/kg IV. Anesthesia will be maintained with air oxygen mixture with Desflurane by controlled mechanical ventilation as per the patient's ideal body weight and requirements. The patient will receive intermittent dose of Cisatracurium to maintain T4/T1

ratio of Zero and Fentanyl 1 mcg/kg boluses as required. The perioperative fluid management of patients undergoing humerus fixation surgeries with Ringer lactate solution and normal saline will be done to maintain mean blood pressure (BP) above 65 or not less than 15% of the baseline BP depending on intraoperative blood loss and urine output. The test group (group D, n= 20) will receive dexmedetomidine loading dose of 1mcg/kg IV in 10 min followed by 0.5 mcg/kg IV/hour during intraoperative period followed by PCIA with morphine in postoperative period for 48 hr. The control group (M, n=20) will receive PCIA with morphine in postoperative period for 48 hr. All the patients will receive Ondansetron 0.2 mg/kg to prevent postoperative nausea and vomiting. Data that will be collected will include morphine consumption in the perioperative period that includes breakthrough pain in post-anesthesia care unit (PACU) (primary outcome) 2 hr, at 12 hr, 24 hr, and 48 hr. Pain intensity with verbal analogue scale (VAS), heart rate, blood pressure, nausea, vomiting, and sedation will also be noted.

Keywords: patient controlled intravenous analgesia, dexmedetomidine, postoperative care

RC164

The Efficacy of Lateral Neck Film in Suspecting Base of Tongue Pathology in Children with Upper Airway Obstruction at a Tertiary Children's Hospital – A Retrospective Cohort Study

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Background: Obstructed breathing in children often requires adenotonsillectomy as the primary treatment. Persistent symptoms may necessitate further diagnostic investigations and surgeries. BOT enlargement or LTH, common sources of obstruction, can often be detected with a simple X-ray as an initial investigation, reducing the need for invasive procedures. The aim of this study was to assess the effectiveness of lateral neck X-rays in diagnosing BOT obstruction in children with upper airway obstruction. **Methods:** This study adopts a retrospective cohort design where the electronic medical records are reviewed for all children with persistent obstructive symptoms who had lateral neck X-ray either after failure of adenoids and or tonsillar surgery primarily from 2020 to 2023 and following them up. **Results**: A total of 22 patients were included. Among them, 68.2% (15/22) were male, while 31.8% (7/22) were female. The age distribution of the patients showed that 63.6% (14/22) were older than 5 years. The mean age of the patients was 7.3 years, with a median of 6.2 years. The age range varied from a minimum of 2.1 years to a maximum of 15.1 years, resulting in a range of 13.0 years. Ten of the 22 patients (45.5%) failed

a previous surgery, while the remaining 54.5% (12/22) were de novo cases. Comorbidities were present in 68.2% (15/22) of the patients. Polysomnography (PSG) was performed in 40.9% (9/22) of patients, while sleep endoscopy was conducted in 81.8% (18/22) of patients. The surgical plan was decided on during sleep endoscopy, and the procedures were performed simultaneously. The presence of obstruction at the level of BOT could be predicted 90% of the time. The description of the BOT surface agreed with the intraoperative findings in 71.4% of the patients. **Conclusion:** It was evident that lateral neck film can be regarded as a valuable method in suspecting obstruction at the level of the base of the tongue. This will help in modifying our protocol into using X-ray as a modality of choice to diagnose BOT obstruction and the decision of the BOT reduction surgery.

Keywords: airway, X-ray, neck, base of tongue, obstruction

RC206

Efficacy of Vitamin A Supplementation in Menopausal Women with Refractory Chronic Cystitis: A 1-year Prospective Trial

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Introduction: Chronic cystitis in menopausal women is a significant clinical challenge, often resistant to conventional therapies including long-term antibiotics and antimuscarinic agents like Vesicare (solifenacin). Despite achieving negative urine cultures, many patients continue to experience debilitating symptoms, highlighting the need for alternative treatment strategies. Vitamin A is a fat-soluble vitamin known for its role in maintaining epithelial integrity and modulating immune responses. Given its properties, vitamin A could potentially restore the damaged bladder epithelium and reduce inflammation in chronic cystitis. This study aims to evaluate the efficacy of vitamin A supplementation in improving symptoms in menopausal women with chronic cystitis who have not responded to traditional therapies. **Methods:** A total of 35 menopausal women, aged 45-70, with a confirmed diagnosis of chronic cystitis, were enrolled in this prospective trial conducted at Dubai Hospital. All participants had previously undergone at least 1 year of antibiotic therapy and a 6-month course of Vesicare without symptomatic improvement, despite negative urine cultures. Participants received a daily dose of 10,000 IU of vitamin A for one year. Symptom severity was assessed using the Interstitial Cystitis Symptom Index (ICSI) and the Interstitial

Cystitis Problem Index (ICPI) at baseline, 6 months, and 12 months. Secondary outcomes included urinary frequency, nocturia, and quality of life, measured using the SF-36 questionnaire. **Results:** Out of the 35 women, 32 completed the 1-year follow-up. Significant reductions in both ICSI and ICPI scores were observed at 6 months, with further improvement at 12 months ($p < 0.01$). Urinary frequency decreased from an average of 14 episodes per day at baseline to 7 episodes per day at 12 months ($p < 0.05$). Nocturia episodes were reduced from 4 to 1 per night ($p < 0.05$). Quality of life improved notably, with significant increases in both physical and emotional well-being scores on the SF-36. No serious adverse events were reported. Mild gastrointestinal discomfort was noted in 15% of participants, but it was manageable and did not necessitate discontinuation of vitamin A supplementation. **Conclusion**: This study provides compelling evidence that vitamin A supplementation can significantly improve symptoms in menopausal women with chronic cystitis who have not responded to conventional treatments. The improvement in ICSI and ICPI scores, as well as quality of life measures, suggests that vitamin A may address underlying pathophysiological mechanisms in chronic cystitis, which are not targeted by antibiotics or antimuscarinic agents. Vitamin A supplementation appears to be an effective treatment for menopausal women with chronic cystitis who have failed to respond to antibiotics and Vesicare. This 1-year prospective trial demonstrates significant improvements in symptoms and quality of life, indicating that vitamin A may offer a novel and effective approach to managing this challenging condition.

Keywords: vitamin A, chronic cystitis, menopause

RC309

Endometrial Cancer Risk in Women with Polycystic Ovary Syndrome: Deciphering the Role of Insulin-like Growth Factor One (IGF1)

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Introduction: Polycystic ovary syndrome (PCOS) is associated with a 3 to 5 times increased risk of endometrial cancer (EC). Elevated insulin-like growth factor one (IGF-1) levels may be key, in PCOS and EC, but this is uncertain. This study investigated the role of IGF1 in EC risk in PCOS by comparing the

effect of serum obtained from women with and without PCOS on proliferation of human endometrial cancer (HEC) cell lines. **Methods:** Cross-sectional study at Kings College Hospital and Latifa Women and Children's Hospital, Dubai, including 10 PCOS women and 11 controls. Blood samples were collected from participants and serum IGF1 levels were measured using ELISA. HEC1-A and HEC1-B were used as a cell culture model using serum from a subgroup of 3 PCOS women and 3 controls. Cell lines cells were treated with serum from participants alone or combined with IGF1 protein, IGF1-receptor (IGF1-R) inhibitor, or both IGF1 protein and IGF1-R inhibitor. Cell proliferation and cell cycle progression were measured by using MTS assay and flow cytometry-based cell cycle assay, respectively. **Results:** Serum IGF-1 levels were higher in PCOS (173 (+/-62) vs 152.5 (67.6) mg/ml), but the difference was not statistically significant. In HEC-1A cell lines, mean cell proliferation was increased in cells treated with serum from PCOS women compared to controls, but significantly more inhibited on the addition of IGF-IR inhibitor, in cells treated with control serum compared to PCOS serum. In HEC1-B cells, no difference was observed in cell proliferation between PCOS and controls. **Conclusion:** Our initial findings do not support a primary role for IGF1 in promoting EC in PCOS. Targeting the insulin signaling pathway alone, may not be sufficient to prevent EC in women with PCOS. More studies are required to understand the molecular mechanism leading to the association between PCOS and EC.

Keywords: IGF, PCOS, endometrial cancer

RC244

Endometriosis Increases the Risk of Developing Rheumatoid Arthritis: Assessing the Evidence

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Background: Endometriosis and rheumatoid arthritis are long-standing medical conditions with incompletely understood etiologies that exist in the setting of chronic inflammation and immune dysfunction. Rheumatoid arthritis occurs more frequently in women and an underlying pathogenesis linked to hormonal factors is suspected, but few large-scale studies have investigated whether the risk of developing rheumatoid arthritis is increased in patients who have endometriosis. This literature review aims to explore and evaluate the strength of the existing evidence regarding the association between the two conditions. **Methods:** We analyzed cohort and cross-sectional studies from 2017 to 2024 without language limits in peer-reviewed journals to identify any association between the occurrence of endometriosis and rheumatoid arthritis in various female populations. Search terms included 'Rheumatoid Arthritis',

'Rheumatoid Arthropathy', 'RA', and 'Endometriosis'. Four studies met the inclusion criteria and were reviewed. **Results:** A significant positive association between endometriosis and rheumatoid arthritis was found; however, the strength of the association was diminished after being adjusted for various multivariates in the 2015 study, Harris et al. (HR=1.41; CI 1.05 to 1.89), while other studies demonstrated a significant association even after adjustment. The strength of the association was discovered to be stronger among younger females. **Conclusion:** While studies on endometriosis and rheumatoid arthritis in this population exist, they are rare and there is a need for more large-scale cohort studies that account for covariates exploring whether endometriosis is a risk factor for rheumatoid arthritis or vice versa. Physicians should be aware of the potential co-occurrence of the two diseases as it may help aid diagnosis in these conditions that are often missed, especially in early stages. The cause-effect relationship and pathogenesis between the two remain unclear. Further genetic and biological data exploring new avenues of immunomodulatory treatment may help redefine the management of endometriosis.

Keywords: rheumatoid arthritis (RA), endometriosis, autoimmune disease

RC240

Engineering the Nuances of In-vitro Oral Mucosa Model

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Introduction: To study the disease mechanism, drug screening, and cytotoxicity testing, engineered 3D models of tissues are preferred over 2D cell culture systems. 3D models could mimic in vivo environment of the cell in vitro when the nuances of specific tissues are integrated. Here we aimed to design an invitro 3D oral mucosa model (OM), incorporating the oral epithelium, connective tissue alongside the immune counterpart to create a reproducible and functional model that could mimic the OM. Firstly, we focused on the seeding density of cells within the connective tissue component - collagen gel/cell construct (CGCC). **Methods:** Human gingival fibroblasts (hGFs) were suspended in neutralized collagen gel at different seeding densities; group-1 (1.75*10^5/ml), group-2 (2.25*10^5 cells/ml), group-3 (2.75*10^5 cells/ml). CGCC were monitored for cell viability with Presto Blue assay for up to 14 days and processed for histology. **Results**: We noted an increase in fluorescence intensity in all groups, which indicates an increase in cell number within the CGCC over 14 days. Upon comparison of the fluorescence intensity

at 3-time points (day 2, 9, and 14) within each group, we noted a statistically significant difference on comparison of readings - day 2 vs day 9 and day 2 vs day 14, meanwhile no significant difference was noted between day 9 vs day 14 readings in all three groups, group 1 (p-value = 0.023<0.05), group 2 (p-value = 0.0028<0.05), and group 3 (p-value = 0.0017<0.05). However, between the groups, no statistical significance was observed. Histological analysis showed viable cells embedded within the collagen gel matrix. **Conclusion**: In summary, hGFs survive and proliferate within CGCCs, and chosen cell densities are suitable for connective tissue components; however, the seeding density can be further increased to mimic the in vivo OM. Further optimization of the model is required to establish the complete in vitro OM equivalent.

Keywords: 3D model, tissue engineering, oral mucosa model

RC02

Enhanced Recovery in Bariatric Surgery Through Opioid-free Anesthesia: A Clinical Case Report

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Introduction: Opioid-free anesthesia management was a new aspect explored in this case study report concerning a 32-year-old male who underwent laparoscopic sleeve gastrectomy. Pre-anesthesia evaluation was a general medical examination seeking to capture his medical information and physical condition. Concurrently, in the operating room, opioid-free anesthesia was secured with dexmedetomidine, lidocaine, magnesium sulfate, propofol, and ketamine, which was propelled by sevoflurane maintenance. Subsequently, post-operatively, titrated infusion of dexmedetomidine and ketamine with respect to patient-controlled analgesia proved to be more effective in controlling pain than opioids. The patient was hemodynamically well-stabilized and also better avoided side-effects associated with opioids. This case evidenced that it is possible and beneficial to create care pathways without opioids to substitute for pain and opioid medication control. It is also a successful part of the Enhanced Recovery After Surgery (ERAS) framework. **Case Presentation:** A 32-year-old male with a body mass Index of 35 presented for laparoscopic sleeve gastrectomy. His medical history is known to have antisocial personality disorder, positive history of substance abuse, and obesity. Both procedure and anesthesia consents were obtained. Intraoperative Management: The patient was positioned in the ramp position, and pre-oxygenation was achieved using CPAP. Pre-medication and Induction: Dexmedetomidine was administered as a bolus dose of 1 mcg/kg ideal BW /10 minutes, followed by a maintenance dose of 0.5 mcg/kg/hr. Lidocaine 100 mg IV bolus was given once, and magnesium sulfate 2 g IV. Propofol 200 mg IV and ketamine 30 mg

IV. Suxamethonium 1.5 mg per actual BW was used for muscle relaxation, followed by rocuronium 50 mg. Intubation is performed using the rapid sequence induction technique. Maintenance of anesthesia: Anesthesia was maintained with sevoflurane at 2% and dexmedetomidine infusion 2-6 mic/kg/hr. Fentanyl was reserved as a rescue medication for persistent hypertension (BP > 150/90) or tachycardia (HR > 120 bpm), but it was not required as the patient remained hemodynamically stable.

Keywords: bariatric surgery, dexmedetomidine, enhanced recovery after surgery, ketamine, opioid-sparing analgesia

RC227

Enhancing Digital Healthcare: The Integration of Innovative Features in the Dubai Health App and "MyChart" Platform

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Introduction: As healthcare continues to evolve, technology has become essential in improving patient care and streamlining healthcare management. The redevelopment of the Dubai Health app and its integration with the "MyChart" website represent significant advancements in digital health services. These platforms provide patients with convenient access to essential services, such as appointment booking, medical records, and telehealth consultations. **Methods:** Our team of healthcare professionals played a crucial role in this project, integrating clinical expertise into the app's development. Collaborating with technology developers, we aimed to enhance patient-to-doctor interaction by implementing seamless online booking and patient communication features. Inspired by the success of other organizations utilizing Epic's "MyChart" system, we consolidated key functions, such as medication management, clinical test results, and payment into a unified digital platform. **Results:** The implementation of the "MyChart" platform within the Dubai Health app required a structured approach based on the implementation of science principles. Initial planning involved mapping user needs, particularly focusing on areas that patients and healthcare providers identified as pain points, such as appointment scheduling and access to medical records. Throughout the development process, iterative feedback loops were established to gather insights from stakeholders, which led to continuous adjustments in the platform's functionality. The integration also addressed interoperability with existing systems, ensuring a smooth flow of data between the app and healthcare providers' electronic medical records. This approach enabled the reduction of manual administrative tasks, improved data accuracy, and facilitated better communication between patients and healthcare providers. **Conclusion:** This project demonstrates the role of implementation

science in guiding the integration of technology into healthcare systems. By focusing on iterative improvements, stakeholder feedback, and system interoperability, the Dubai Health app and "MyChart" platform offer a patient-centered solution that meets the evolving needs of both patients and healthcare providers. The project serves as a model for future digital health initiatives aimed at enhancing patient engagement and care delivery.

Keywords: digital health, innovation, patient app

RC292

Epidemiology of Pediatric Polytrauma Pattern (1-18 years) in Rashid Hospital Trauma Center Dubai, April 2017-December 2018: A Retrospective Study

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Background: Polytrauma involves multiple traumatic injuries affecting various body regions, posing life-threatening challenges for diagnosis and treatment, particularly in children. It is a significant cause of mortality worldwide, commonly resulting from road traffic accidents, falls, and pedestrians, with head and lower extremity injuries prevalent in pediatric cases. This research aims to identify the most common causes and mechanisms of injury in pediatric polytrauma cases at Rashid Hospital Trauma Center in Dubai, to determine the organ systems commonly involved, and to assess the severity of pediatric injury and mortality rate among pediatric patients with polytrauma over a specific timeframe. **Methods:** This retrospective study analyzed 189 pediatric polytrauma cases at Rashid Hospital Trauma Center in Dubai from April 2017 to December 2018. Patients aged between 1 and 18 years flagged as polytrauma were included. Data collected from electronic medical records encompassed demographics, injury mechanisms, systems involved, and pediatric trauma scores (PTS). Statistical analyses were performed using SPSS, employing Chi-square to correlate PTS with clinical outcomes. **Results:** A total of 189 patients were analyzed, with 143 being male (75.7%) and a mean age of 11 years (SD= 5.6). The most common mechanism of injury was motor vehicle collisions (50%), followed by falls (24%), pedestrian injuries (22%), blunt injuries (3%), penetrating injuries (0.5%), and others (0.5%). The most common system involved was musculoskeletal (52.4%), followed by head and neck (32.3%), chest (29.1%), abdomen (17.5%), circulatory (11.1%), and spinal cord injury (2.1%). The severity of pediatric polytrauma was scored by using the pediatric trauma score which showed significant injury in 37% and nonsignificant in 63%. The correlation between

PTS and in the need for hospitalization, surgical intervention, or ICU admissions were significant (P <0.05). The mortality rate was 1% in our research population. **Conclusion:** The importance of this research highlights pediatric polytrauma as a significant health issue. A valuable tool such as PTS is used to guide clinical decisions. However, further research is needed in improving management strategies and reducing morbidity and mortality in this vulnerable population.

Keywords: pediatric polytrauma, pediatric trauma score (PTS), pediatric trauma, trauma center, trauma epidemiology, pediatric resuscitation, child safety, trauma assessment tool, multisystem injury, pediatric emergency pediatric trauma management

RC115

Eradication Rate of *Helicobacter pylori* Infection Using Different Regimens of Treatment in Adults Treated in Rashid Hospital – Dubai Health

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Introduction: With prevalence rates greatly varying among various geographic areas and ethnic groups, *Helicobacter pylori (H. pylori)* infection continues to be one of the most prevalent chronic bacterial infections affecting humans. Peptic ulcer illness and gastric cancer are both significantly influenced by *H. pylori* infection. *H. pylori* eradication is challenging despite various methods for doing so in a region where antimicrobial medications have limited access. According to some research, the effectiveness of common therapies is declining, particularly triple regimens, whose success rate has fallen to 25–60%. Quadruple medication has recently been recognized as the most effective treatment option for eliminating. No study has been done in the UAE to assess the eradication rate, and no study compared the eradication rate between the conventional triple therapy and bismuth-based quadruple therapy. Our study aims to look into the eradication rate of *H. pylori* infection as well as the difference in eradication rates between the conventional triple therapy versus bismuth-based quadruple therapy, in patients who tested positive for the bacteria, received one of the proposed lines of therapy and tested for eradication afterwards Methods: Our study is a retrospective study, looking into medical records of patients who were tested, treated for *H. pylori* and confirmed eradication in Rashid Hospital - Dubai between Oct 2018 and Dec 2024). Results: We had 1250 patients tested positive for *H. pylori*, out of them 560 underwent

post-treatment testing, our sample had 59% females and 41% males. The most common indication for testing was abdominal pain, followed by dyspepsia, then heartburn, asymptomatic (As part of pre-bariatric surgery workup) and anemia as well as GI bleeding. Our sample overall eradication rate was 72.1% (403 patients). We found that bismuth-based quadruple therapy had the highest eradication rate of 84.4% (331 patients), Clarithromycin-based triple therapy rate of 35.5% (48 patients), which was statistically significant (P value <0.001). Conclusion: Bismuth-based quadruple therapy had significantly higher rates of eradication compared to Clarithromycin-based triple therapy which is in keeping with the latest ACG guidelines for treatment of *H. pylori* in 2024.17. As a conclusion, we do recommend the use of Bismuth Quadruple therapy as a first-line treatment for *H pylori* infection, given the proven national and international superiority in the eradication of the infection. The recognition of the rate of eradication as well as the best regimen to achieve it does facilitate the choice of antibiotic treatment for the patient presented to our healthcare facilities to prevent the major complications of the disease.

Keywords: *H. pylori*, *Helicobacter pylori*, infection, eradication rate

RC219

Establishing a Wastewater-based Surveillance Framework for Antimicrobial Resistance in Dubai, UAE

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Introduction: Antimicrobial resistance (AMR) is a global health threat, and wastewater-based surveillance (WBS) offers a valuable approach for population-level monitoring of AMR pathogens, resistance genes, and mobile genetic elements. This study aimed to develop a framework for WBS for AMR in Dubai, UAE. **Methods:** For the first phase of this study, systematic wastewater sampling was conducted from sites across Dubai with optimization of sampling strategies. Grab sampling approach was used for collecting at community and hospital nodes, while 24-hr composite sampling was used at the wastewater treatment plants (WWTPs). Culture-based bacterial detection was carried out for the samples. **Results:** Samples were obtained from nine communities and two hospital collection nodes for over 3 months. In addition, influent, and affluent samples were collected from two WWTPs. Preliminary data from culture-dependent assays revealed notable differences in AMR profiles between community and hospital samples, as well as WWTP influent versus effluent samples. Community wastewater samples showed a diversity of environmental staphylococci including *Staphylococcus xylosus*, *S. simulans*, *S. lentus*, *S. sciuri*, and *S. gallinarum*, as well as *Enterobacter* spp., in contrast to the specific detection of *S. aureus* and *S. haemolyticus* from hospital wastewater. WWTP influent samples included organisms such as *S. saprophyticus* and *S. warneri* without notable bacterial detection in the WWTP effluent samples. Gram-negative organisms identified exclusively from community sites include *Acinetobacter haemolyticus* and *A. lwoffii* while *Aeromonas salmonicida* was present in hospital samples. **Conclusion:** We demonstrate the feasibility of conducting a robust WBS for AMR in Dubai. Our findings provide valuable insights into bacterial prevalence and distribution across different nodes and highlight the efficacy of wastewater treatment at WWTPs. Future work will employ deep metagenomic sequencing to investigate AMR transmission dynamics within the wastewater microbial community to inform targeted public health interventions.

Keywords: antimicrobial resistance (AMR), wastewater-based surveillance (WBS), *Staphylococcus* spp., wastewater treatment plants (WWTPs)

RC137

Evaluation of Factors Affecting Handgrip Strength Among the Adult Population from UAE

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Background: Handgrip strength (HGS) is a powerful tool to assess generalized body health. However, the relevant data from the UAE are poorly characterized. We aimed to determine the associative factors affecting HGS among the UAE adult population. **Methods**: We measured HGS using a digital handgrip dynamometer and a questionnaire to collect information about physical activity and the sociodemographic status of UAE adults. **Results:** We recruited 1145 participants, including 740 (64.6%) men and 372 (32.5%) women. The median HGS was 31.8 kg (25.4-40.0 kg) for the dominant hand and 31.0 (23.9-38.5 kg) for the nondominant hand. Men had higher HGS than women ($p<0.05$). We found a significant difference between dominant and nondominant HGS based on the nature of work. We report that working participants exhibited a significantly higher HGS than nonworking participants ($p<0.05$). Furthermore, median HGS was higher in participants who exercised 4-5 times a week than sedentary participants ($p<0.05$). Strength training was associated with significantly higher HGS than other exercise types ($p<0.05$). Surprisingly, we found that smoking was associated with a higher HGS. **Conclusion:** We report significant associations of HGS with gender, resistance training, and occupation. These factors may be considered when using HGS as an assessment tool for health and disease.

Keywords: effects on general health, strength, handgrip, physical activity, exercise

RC179

An Evaluation of the Effects of Yoga on Depression in Nurses: A Controlled Experimental Study

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Introduction: Depression is a major mental health condition marked by a persistent lack of interest in activities that were once enjoyable and ongoing feelings of sadness, frequently coupled with a difficulty in carrying out everyday tasks. Throughout the COVID-19 pandemic, nurses faced emergency conditions that amplified their vulnerability to physical and mental stress, resulting in a significant rise in depressive symptoms. During this time, 22% of nurses were affected by depression, meaning over one in five experienced depressive disorders. Studies suggest that yoga can be as effective as antidepressants and exercise in relieving symptoms of depression. It provides both quick relief and sustained improvement, helping to reduce symptoms severity and improve treatment remission rates. By incorporating meditation, controlled movements, and deep breathing, yoga increases the calming neurotransmitter GABA, which aids in alleviating depression symptoms. Although there is limited research on the effect of yoga on depression among nurses, this study seeks to investigate how yoga impacts depression. The aim of this study was to evaluate the effects of yoga on depression in nurses. **Methods:** An experimental design was utilized for this study. Seventy nurses from a government multispecialty hospital were involved. Participants were randomly assigned to either an experimental group or a control group. The experimental group engaged in 30 min of daily yoga for 90 days. Data were collected online before and after the intervention from both groups. The Patient Health Questionnaire (PHQ) was used to evaluate the outcomes related to depression. **Results:** The average test score for the study group (19.29) was significantly higher compared to the control group (28.17), with a t-value of -7.395 and degrees of freedom of 68 at a 5% significance level. Given that the p-value < 0.05, it is concluded that there is a significant difference between the study and control groups in terms of depression, as measured by the PHQ, following the yoga intervention. **Conclusion:** Yoga proved highly effective in reducing depression among nurses.

Keywords: nurses, yoga, depression

RC183

Ex utero Intrapartum Treatment Procedure in a Case of Placenta Previa and Hypertension Whose Baby had Scimitar Syndrome

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Introduction: A 34-year-old female was admitted at 36 weeks, 4 days gestation with pregnancy-induced hypertension and grade 3 posterior placenta previa. The fetus had right lung hypoplasia with right cardiac axis deviation (Scimitar syndrome). EXIT procedure was planned to secure the baby's airway. Due to the high risk of hypoxic brain injury associated with an emergency tracheostomy, the decision was made to proceed with endotracheal intubation. Tracheostomy was planned as a rescue procedure. **Methods:** The patient had an emergency cesarean section under general anesthesia. Anesthetic management in this case was challenging and required uterine relaxation and preservation of uteroplacental blood flow to facilitate EXIT procedure, followed by uterine contraction immediately after ligation of umbilical cord. Sevoflurane and carbetocin were used for this. ENT surgeon from Al Jalila hospital performed EXIT intubation of the baby. Using a 1.9 mm endoscope and a size 8 Parsons laryngeal blade, the ENT team advanced an endotracheal tube over the endoscope. Once intubated, the endoscope was withdrawn, and the umbilical cord was clamped. **Results:** Intraoperative blood loss was 2000 mL and a Bakri balloon was placed in the uterus. It was removed and Jada was inserted later due to bleeding. Six units of blood and other blood components were transfused in the perioperative period. The neonatologist cared for the baby. The patient's condition stabilized with appropriate interventions. Hypertension was managed by increasing doses of Labetalol. At the time of discharge, the blood pressure was controlled, and she was asymptomatic. **Conclusion:** This patient had multiple problems including pregnancy-induced hypertension, placenta previa, postpartum hemorrhage, and Scimitar syndrome in the baby. The EXIT procedure required extensive coordination and preparation involving obstetrics, ENT, anesthesia, neonatology, and nursing teams in Latifa and AlJalila hospitals.

Keywords: EXIT, ex utero intrapartum treatment, rescue airway

RC272

Exploring Genetic Causes of Pediatric Neurodevelopmental Disorders via Whole Genome Sequencing

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Introduction: Neurodevelopmental disorders (NDD) are characterized by a varying set of phenotypes, affecting more than 3% of children worldwide. These disorders are highly heterogeneous with both genetic and environmental factors contributing to their pathogenesis. The advent of next-generation sequencing technologies has enabled the detection of causative pathogenic variants in many diseases. **Methods:** Herein, we present two pediatric NDD cases that were subjected to long-read whole genome sequencing at the Center for Applied and Translational Genomics (CATG), MBRU. Following this, thorough genetic analysis identified potential pathogenic variants and revealed insights into the genotype-phenotype correlations. **Results:** In the first case, we identified a heterozygous likely pathogenic variant (c.1463G>A, p.R488H variant) in KCNQ4, which is associated with hearing loss, consistent with the patient's phenotype. In the second case, a c.11788C>T, p.Q3930X variant in the *KMT2D* gene was observed. Pathogenic variants in the *KMT2D* gene are known to cause autosomal dominant Kabuki syndrome 1, branchial arch abnormalities, choanal atresia, athelia, hearing loss, and hypothyroidism syndrome. **Conclusion:** These findings underscore the clinical utility of long-read WGS in improving diagnostic accuracy for patients with neurodevelopmental disorders, particularly in identifying pathogenic variants.

Keywords: neurodevelopmental disorders, genotype-phenotype, next-generation sequencing, pathogenic

RC299

Exploring Phenotypic Patterns of Cytokine Storm in Pediatric Patients with Severe Viral Infections and Multisystemic Dysfunction: Case Series Illustrating Successful Novel Therapeutic Strategies

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Introduction: The COVID-19 pandemic highlighted the significant role of cytokine storms in causing severe illness, multi-organ dysfunction, and mortality. Our 3-year experience treating children with severe cytokine storms caused by COVID-19 infection has significantly advanced our understanding of how to manage other viral infections that lead to severe illness in children. **Methods:** This study is part of retrospective case series. **Results:** Over the last 3 years, we encountered 9 cases who were previously healthy and presented to Al Jalila Children's Hospital with viral infections resulting in severe cytokine storm, of whom 3 were males and 6 females (ratio 1:2). The age range was from 7 weeks to 9 years of which 60% were younger than 2 years of age. Four patients were admitted to the critical care unit. Three patients were admitted due to respiratory syncytial virus infection of whom one had concomitant adeno and rhinovirus infection, two patients had dengue, one had adenovirus infection, one had human metapneumonavirus, one had parainfluenza, and one had influenza B. The virus detection was done by PCR method. Biomarker analysis indicative of cytokine storm was present in all cases. 5 patients had abnormal echocardiograms. Intravenous immunoglobulin (IVIG) was administered to all patients with corticosteroids prescribed for four cases. Additionally, three patients received biological treatments, including Anakinra for two individuals and Jakavi for one. Anti-coagulant therapy Aspirin was administered to five patients. All patients improved and were discharged home with subsequent follow-up, revealing no consequences. **Conclusion:** To enhance patient outcomes for children with severe viral infections, physicians should be vigilant to closely monitor for the evidence of cytokine storm and implement targeted and timely treatment to mitigate its effects.

Keywords: RSV, Cytokine storm, biological treatment

RC236

Exploring Reading Habits Among Dubai Health Medical Interns in the Academic Year 2023-2024

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Background: With the rapid growth and accessibility of medical knowledge, keeping up-to-date has become increasingly challenging for physicians. Without regular updates, a physician's knowledge and skills risk becoming outdated. Notably, the reading habits of medical graduates in the UAE have not been explored in the literature. This study seeks to evaluate the reading habits of medical interns at Dubai Health by determining whether they read medical literature, estimating the time they dedicate to reading, identifying their preferred methods of accessing medical literature, and exploring the alternative resources they use to acquire medical information if they do not read from medical literature. **Methods:** The data were collected via an online questionnaire sent by email to all medical interns at Dubai Health in the academic year 2023-2024. It consisted of three sections that assess the medical interns' reading of medical literature: average time spent on reading, mode of reading, and exploring other resources for gaining medical knowledge. **Results:** A total of 74 responses were collected out of the 80 medical interns. 80% of the medical interns (N=59) read from the medical literature. Among the medical interns who engage in reading medical literature, 79% (N=47) dedicate 1-5 hr per week to reading medical literature, while 15% (N=9) spend 6-10 hr per week. Only 3% (N=2) of the medical interns spend 11-20 hr per week, and 1% (N=1) spend more than 20 hr per week reading medical literature. Preferred mode of reading: 55% (N=33) of the medical interns prefer scanning for desired information from the article. The majority, 67%, rely on continuous medical education courses and medical websites. **Conclusion:** Dubai Health's medical interns are utilizing medical literature to stay up-to-date with the latest information, while a minority prefer to acquire medical knowledge from alternative sources like continuous medical education courses and medical websites. Recently graduate doctors needed to dedicate their time to improve their competencies and securing their professional development.

Keywords: online reading, medical interns, reading habits, reading medical journals, reading preferences

RC258

Exploring Social Media Use and its Implications in Medical Education: Insights from Dubai Health Medical Interns

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Introduction: Dubai is a rapidly expanding global city where social media is a prominent force. This study investigates the role of social media and smart devices in medical education, focusing on 81 postgraduate medical trainees across Dubai Health's six teaching hospitals. Despite known drawbacks such as legal risks and time consumption, social media offers significant benefits, including enhanced educational resources and professional development. This research aims to assess Dubai Health Medical interns' social media usage patterns, preferences, and their perceptions of its advantages and challenges in medical education. **Methods:** A descriptive cross-sectional study was conducted in 2024 among 75 medical interns from Dubai Health, with a sample size of 63. A structured questionnaire was utilized to gather data on social media usage, its benefits and drawbacks in medical practice, and perceptions regarding professional and legal responsibilities. **Results:** Most interns spend 1-3 hr per day on social media, predominantly for personal use, with Instagram emerging as the most used platform. Approximately 62% of interns engaged with social media for medical purposes. They perceived benefits such as improved patient care, enhanced performance, and better post-graduation opportunities. However, concerns about legal risks, time consumption, and potential negative impacts on patient care were noted. Most interns felt a responsibility to address inaccurate health information online and were aware of their institution's social media policies. They expressed a strong need for formal training on social media use in medicine. **Conclusion**: The study highlights a general awareness among interns of the benefits and risks associated with social media in medical practice. Although many interns are conscious of potential legal and professional risks, there is a clear consensus on the value of formal training to mitigate these risks. The findings advocate for the development of comprehensive social media policies and training programs to enhance the quality of healthcare while managing associated risks.

Keywords: social media, medical education, legal risks, professional development, postgraduate training

RC68

Exploring the Most Common Psychiatric Diagnoses Attending Emergency Departments of Dubai Health Hospitals in 2023

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Background: Psychiatric emergencies are becoming increasingly prevalent in emergency departments worldwide. Despite global trends, little is known about the specific psychiatric diagnoses in the UAE, particularly in emergency settings. This study aims to fill that gap by evaluating the most common psychiatric diagnoses made in the Emergency Departments of Dubai Health facilities in 2023. **Methods:** A retrospective analysis was conducted on patient data from five Dubai government hospitals in 2023. Data was extracted using the EPIC Salama electronic medical record system, categorizing diagnoses according to the ICD-10 codes for mental, behavioral, and neurodevelopmental disorders. The analysis focused on identifying the most common psychiatric conditions and their distribution across the patient population. **Results:** Out of 215,111 total patients visiting the Emergency Departments, 9192 received psychiatric-related diagnoses. The most common subcategory was “Mental and Behavioral Disorders due to Psychoactive Substance Use” (F10-F19), accounting for 36.8% of all psychiatric diagnoses. Within this subcategory, nicotine dependence (F17) was the most frequent diagnosis, representing 23.8% of all psychiatric cases. Other common diagnoses included anxiety disorders (15.2%), alcohol-related disorders (9.9%), reaction to severe stress and adjustment disorders (6.6%), and major depressive disorder (5.5%). The second most common subcategory was “Anxiety, Dissociative, Stress-Related, and Other Nonpsychotic Mental Disorders” (F40-F49), which made up 25.4% of psychiatric diagnoses. This was followed by “Mental Disorders due to Known Physiological Conditions” (11.3%), “Mood [Affective] Disorders” (9.1%), and “Pervasive and Specific Developmental Disorders” (6.4%). **Conclusion:** The study highlights the growing burden of psychiatric conditions, particularly substance use disorders, in Dubai Health Emergency Departments. These findings underscore the need for tailored psychiatric services and culturally sensitive interventions to improve diagnostic accuracy and patient care.

Keywords: emergency department, psychiatry, mental health, top diagnoses

RC214

Exploring the Relationship Between Anti-epileptic Drugs and Hypothyroidism: A Retrospective Study for Epileptic Patients on Antiepileptic Medications

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Introduction: Epilepsy is a widespread condition, and one-third of unknown epilepsy patients need lifelong antiepileptic drugs. In the first 3 years of life, thyroid hormones regulate metabolic pathways, growth, central nervous system development, and myelination. However, studies have shown that short-term and long-term antiepileptic medications affect thyroid hormone balance in children and adults. Many epilepsy patients have abnormal thyroid hormone levels despite having normal thyroid. The aim of the current study was to compare thyroid hormone profiles of epileptic children taking old- and new-generation antiepileptic drugs. **Methods**: This cohort retrospective study included 2279 children who attended Latifa and Al Jalia Children's Hospital's pediatric neurology clinics from January 2018 to December 2023. **Results:** Data from 548 patients who met the inclusion criteria were analyzed by the IBM SPSS 29 software. Thirty patients (5.47%) had subclinical to primary thyroid dysfunction, while other thyroid issues were absent. 24 patients (80% of thyroid dysfunction patients) had subclinical hypothyroidism. Six patients (20% of thyroid dysfunction patients) had primary hypothyroidism. Around 23.3% needed thyroxine. Our study found that 66.7% of subclinical hypothyroidism patients used old-generation antiepileptics and 45% used new ones. Hypothyroidism had 83% old-generation and 33% new-generation antiepileptics. Group 1 (old generation antiepileptics) and Group 2 (new generation) had *p*-values of 0.530 and 0.580, respectively. **Conclusion: Both** old-generation and newer antiepileptics affect epileptic children's thyroid hormone profile on long-term therapy, but we could not prove a statistical significance. As antiepileptics did not cause clinical hypothyroidism, thyroid hormone screening is advised.

Keywords: hypothyroidism, antiepileptic drugs, epilepsy

RC96

Factors and Challenges Influencing Dubai Health Medical Interns to Participate in Volunteering: A Survey-based Cross-sectional Study

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Background: Volunteering among medical interns is an important yet understudied aspect with profound implications for personal, professional, and community growth. The motivations for medical interns to volunteer vary, including factors like social responsibility, altruism, personal fulfillment, and career-related goals. Healthcare organizations play a significant role in providing support and opportunities for interns to engage in volunteer work, and institutional policies or programs can affect their decisions. Various barriers such as time constraints, workload, and lack of awareness may deter interns from volunteering. **Methods:** This study is a cross-sectional study, conducted between January 2024 to February 2024, and explores factors influencing and preventing interns from participating in volunteering activities. Data was gathered using a self-administered online survey. The questionnaire included questions to assess previous volunteering experience, as well as any motivating and preventing factors. Data was analyzed using Microsoft Excel. **Results:** The survey was completed by a total of 65 Dubai Health Interns. Most of the interns had previous volunteering experience (84.6%), mostly within the medical field (61.8%). Key motivations for volunteering included serving the community (19.1%), career development (13.9%), and skill enhancement (13.1%), followed by peer/faculty influence (9%) and networking (10.1%). This is while financial compensation (1.95%) and good karma (4.1%) were the least reported motivators. The primary barriers to volunteering were heavy workload or time constraints, and lack of awareness about opportunities, both reported by 40.9% of participants. Other barriers included transportation issues (13.6%) and health concerns (4.5%). **Conclusion:** Medical interns are motivated to volunteer by a desire to serve the community, but their participation is impeded by heavy workloads, time constraints, and a lack of awareness about opportunities. Addressing these challenges could encourage more interns to engage in volunteering, enhancing both their professional growth and community involvement.

Keywords: challenges, volunteering, medical internship, healthcare training, post-grad medical education

RC04

Factors that Influence the Durability of Dental CAD/CAM Restorations

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Background: There is insufficient data on the failure of teeth restored with CAD/CAM (computer-aided design and computer-aided manufacture) ceramic restoration. This study aimed to analyze the failure of CAD/CAM ceramic crowns by carrying out a micro-CT analysis of the tooth-crown marginal gaps and evaluating the failure load of the CAD/CAM ceramic crown after testing the teeth's resistance to fracture. **Methods:** Prepared teeth restored with CAD/CAM crowns were divided into four groups to evaluate the effect on the marginal fit of crowns produced with different milling tool kits (new versus used), different dental CAD/CAM materials, and different scanners (extraoral and intraoral) using a micro-CT scanner and the associated software. Crown dies were divided into two groups based on the design of the preparations, to compare a modified design with round line angles to a more traditional design. The experimental dies were covered with a simulated periodontal ligament and mounted in steel cylinders to a level 1 mm below the preparation finishing line using auto polymerizing acrylic resin. To assess the strength of the crown in each sample, tens of thousands of cyclic loadings were applied until failure occurred. **Results:** The micro-CT showed that the largest vertical margin gaps (about 60 μm) occurred in the intraoral scanner group, and the lowest values were seen in the feldspar group (about 10 μm) when milled with new milling tools. A relationship was found between preparation design and fracture strength for CAD/CAM dental ceramic crowns. Fracture resistance was higher in specimens prepared with round line angles. **Conclusion:** Teeth restored with CAD/CAM ceramic crowns revealed different marginal gaps related to the technology used in their fabrication. CAD/CAM ceramic restorations demonstrated failure loads that differed according to tooth abutment preparation design and the presence of residual stress could be demonstrated in all milled ceramic crowns.

Keywords: CAD/CAM, micro-CT, cyclic loading

RC26

Femoral Nerve Palsy Post Total Hip Arthroplasty (THA) via Direct Lateral Approach

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Introduction: Femoral nerve palsy is a rare but serious complication of after total hip replacement, with an incidence of 0.1% to 0.4%. Despite its rarity, femoral nerve palsy can significantly impact patient recovery and quality of life. This case report examines the occurrence of femoral nerve palsy in a patient following a primary total hip replacement and highlights the importance of surgical technique and postoperative detection and its management. **Methods:** We present the case of a 38-year-old male with a history of microscopic polyangiitis on long-term steroid treatment who developed femoral nerve palsy following total hip replacement. The patient was admitted with non-traumatic right hip pain with osteoporotic fracture of the femoral head and underwent elective total hip replacement. Postoperatively, the patient showed quadriceps weakness and related sensory deficits. Postoperative assessments included physical examination, electromyography, nerve conduction studies, and magnetic resonance imaging to assess the extent of the nerve injury. **Results**: Electromyography and nerve conduction studies confirmed severe femoral mononeuropathy with profound active denervation changes. A subsequent magnetic resonance imaging revealed the atrophy of the right sartorius and quadriceps femoris muscles. Conservative management was decided, including physiotherapy and close follow-up, which led to significant gradual improvement over six months, with an enhanced range of motion in the knee, increased quadriceps strength, and improved sensation on the medial side of the leg and foot. **Conclusion**: Femoral nerve injuries, although uncommon, pose significant risks in total hip replacement. Excessive retraction during surgery may contribute to these injuries. Early diagnosis, conservative management, and interdisciplinary coordination are crucial to achieving optimal recovery.

Keywords: total hip replacement, femoral nerve palsy, electromyography, nerve conduction studies

RC291

From Respiratory to Neuroinvasion: Curious Cases of Mycoplasma Meningoencephalitis

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Background: *Mycoplasma pneumoniae* (*M. pneumoniae*) is a small, atypical bacterium that primarily causes respiratory infections, notably community-acquired pneumonia (CAP). While the respiratory involvement of *M. pneumoniae* is well-characterized, its neurotropic potential remains less understood. Several pathogenic mechanisms have been proposed to explain the development of central nervous system (CNS) involvement, including direct CNS invasion and immune-mediated inflammatory responses, the latter being the most widely accepted theory. This is supported by the observation that *Mycoplasma pneumoniae* meningoencephalitis often presents in the absence of detectable *M. pneumoniae* in cerebrospinal fluid (CSF) and may occur as a post-infectious phenomenon. The immune-mediated hypothesis suggests that molecular mimicry or systemic inflammatory responses triggered by the pathogen may play a key role in CNS damage. **Case Presentation**: We present two cases with acute neurological diseases after *M. pneumoniae* infection. The clinical presentations were characterized by encephalitis in one patient and post infectious cerebellitis in the other patient. Both patients were treated with levofloxacin. However, the first patient required intravenous immune globulin (IVIG) in addition given the deterioration of his general condition **Conclusion:** *M. pneumoniae* may reveal different neurologic complications.

Keywords: mycoplasma, encephalitis, neuroinvasion

RC120

Genetic Counseling Patient Attitudes: Cultural and Psychological Factors in Middle East

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Introduction: Genomic advancements have led to increased utilization of genetic testing in clinical care, yet barriers to accessing genetic counselling and genomics services remain strong, particularly in the Middle East where inherited diseases are highly prevalent due to consanguinity. Limited knowledge of healthcare professionals' experiences in genetic counseling in the Middle East necessitates understanding their perspectives for better service improvement in the region. **Methods:** As a pilot, a survey of 32 healthcare professionals providing genetic counseling services in the Middle East explored provider experiences, patient attitudes and cultural/psychosocial factors related to genetic testing. **Results:** Among the participants, 21 providers (65.6%), caring for patients of multiple ethnicities, including Arabs, recognized that there are unique challenges to counseling between these patient groups. Thematic data analysis identified that higher levels of consanguinity and the stoic nature of the people are unique cultural considerations for this region. Language barriers and limited resources were identified as genetic counseling challenges. Overall, patients in the region demonstrated good coping abilities with genetic diagnosis. Eighteen responses (56%) highlighted an overall positive attitude, with increasing awareness and acceptance towards genetic testing in this region. **Conclusion:** This study highlights the need for further research and interventions to address the unique challenges and improve genetic counseling services in the Middle East.

Keywords: genetic counseling, attitudes, Middle East, patient attitudes, genetic counseling challenges

RC66

Glomangioma, a Rare Differential Diagnosis for Subungual Lesions

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Introduction: Glomus tumors are rare, benign neoplasms from glomus bodies, mainly in the subungual region of fingers. They cause severe pain, pinpoint tenderness, and cold sensitivity. Diagnosis is challenging due to their small size and slow growth, often delayed for years. **Case Presentation:** A 63-year-old male, medically free, reports a 40-year history of episodic, severe, sharp pain at the tip of his right middle finger, triggered by minor trauma or cold exposure, lasting 15 minutes before subsiding. No family history. The right middle fingernail is swollen, bluish, with slight ulnar deviation but normal range of motion. There is exquisite tenderness on palpation over the nail. Muscular and neurological functions are preserved. Tests: Love, Hildreth, Cold, Joseph-Posner. Normal bony texture except for slight ulnar deviation of the third distal phalanx. Focal oval-shaped mass lesion at the dorsal aspect of the third distal phalanx deep into the nail bed, measuring 1.3 cm (craniocaudal) × 0.8 cm × 0.7 cm (cross-sectional). High T2 and low T1 signal intensities. Pressure erosion on the posterior cortex of the distal phalanx with remodeling. Flexor and extensor tendons are intact. Histological examination revealed groups of epithelioid cells surrounding dilated, thick-walled blood vessels within fibrous stroma. Tumor cells are uniform with indistinct borders, eosinophilic cytoplasm, and round nuclei with minimal mitotic activity. Differential diagnoses: hemangioma, epidermal inclusion cyst, angioleiomyomas, tenosynovial giant cell tumor, melanoma, traumatic hematoma, neuroma, eccrine spiradenoma, leiomyoma, ganglion, exostosis, complex regional pain syndrome type 2, gouty arthritis, and calcinosis. Curative treatment is surgery (transungual or lateral subperiosteal). **Conclusion:** Glomus tumors are rare, benign neoplasms from glomus bodies in the reticular dermis, often in the distal phalanx of the index finger. Characterized by intense pain, pinpoint tenderness, and cold sensitivity, diagnosis is often delayed (18 months to 15 years). High resolution magnetic resonance imaging (HR-MRI) is the gold standard, and histopathology is confirmatory. Surgery is curative, but postoperative recurrence is possible, necessitating long-term follow-up.

Keywords: glomus tumor, glomangioma, subungual lesions

RC246

Guillain-Barré Syndrome Patient Profile and Clinical Outcome: A Single Center Study

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Introduction: Acute inflammatory demyelinating polyradiculoneuropathy, also known as Guillain-Barré syndrome (GBS), is an autoimmune disorder commonly associated with symmetrical inflammatory polyradiculopathy, characterized by ascending weakness and areflexia. GBS is the most common global cause of acute neuropathy, affecting 1–2 per 100,000 person-years, with higher risk in males and increased incidence with age. Furthermore, limited data is available regarding GBS in our region. This study focuses on assessing clinical profiles and outcomes in a tertiary hospital, aiming to contribute to the regional knowledge pool and evaluate management plan outcomes compared to the global standards. **Methods:** A retrospective cohort study, conducted at Rashid Hospital between February 1st and March 31st, 2023, examined adults diagnosed with GBS between January 1st, 2017 and December 31st, 2022. Comprehensive data was collected from the hospital's electronic medical records. It prioritized confidentiality through the secure storage of collected data in a password-encrypted document. **Results:** Most of the patients diagnosed with GBS were male (72.5%), the mean age at diagnosis was 40.8 ± 13.7 years, and a third (30.0%) experienced GBS during the fall season. Before the GBS onset, 45.9% had an infection. The most reported symptoms on admission were the weakness of extremities (87.5%), while shortness of breath was rare (2.5%). Additionally, areflexia was found in 80.0% of patients. Nerve conduction studies revealed a mixed pattern (axonal failure and demyelination) in 62.5%. Treatment involved IVIG (55.0%), plasma exchange (15.0%), or a combination (25.0%). Most patients (72.5%) did not require respiratory support, compared to 20.0% who needed intubation. Upon discharge, only 15.0% were back to their functional baseline. **Conclusion**: Our study sheds light on the diverse clinical presentations and treatment outcomes of patients diagnosed with GBS, underscoring the complexity of GBS and emphasizing the importance of a personalized, multidisciplinary approach in its management.

Keywords: clinical characteristics, epidemiology, Guillain-Barré syndrome, intravenous immunoglobulin

RC239

Hearing Loss in Children: A Descriptive Study on the Epidemiology, Risk Factors, and Work-up

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Introduction: Pediatric hearing loss is a major health issue with significant impacts on children's language development, communication skills, education, and overall quality of life. The UAE, like many countries,

faces challenges in managing this condition within its pediatric population. This study aims to enhance our understanding of pediatric hearing loss by exploring its prevalence, causes, consequences, and evaluating diagnostic and interventional strategies to improve early detection and management. **Methods:** A review of pediatric patients with hearing loss at a tertiary public healthcare center from 2017 to 2022 was conducted. Data was analyzed using SPSS software. **Results:** The study included 188 participants with a nearly equal gender distribution. A majority (84.6%) had bilateral hearing loss. The most prevalent hearing loss pattern was flat (58.2%), accounting for 107 individuals, followed by the slope pattern (36.9%). Imaging studies showed abnormalities in 22.3% of CT scans and 29.3% of MRIs. Diagnostic tests indicated varied abnormal findings: IgG CMV (20.7%), urinalysis (11.7%), EKG (15.4%), ophthalmology exams (28.9%), and genetic testing (19.7%). Hearing aids were the most common treatment (61.2%), followed by cochlear implants (18.1%). **Conclusion**: The study's findings highlight the importance of thoroughly investigating children with hearing impairment. The prevalence found is pertinent to a referral center and does not represent the population at large. Insights from this research can guide healthcare professionals, policymakers, and parents in improving their support and management of the affected children.

Keywords: hearing loss, pediatric, workup, prevalence

RC163

Identification of a Gene Expression Signature Associated with Multisystem Inflammatory Syndrome in Children (MIS-C)

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Background: Multisystem inflammatory syndrome in children (MIS-C) is a severe and potentially life-threatening complication of COVID-19 in children. While functional and phenotypic changes in immune cells have been observed, a comprehensive understanding of the gene expression patterns associated with immune responses in MIS-C remains incomplete. **Methods:** In this study, we used RNA sequencing to analyze expression patterns in peripheral blood cells from 10 MIS-C patients before and after intravenous immunoglobulin (IVIG) therapy, as well as in age-matched controls who had confirmed SARS-CoV-2 infections but were asymptomatic or had mild symptoms. Additionally, we compared the pre-IVIG

expression data of MIS-C patients with RNA-Seq data from Kawasaki disease (EBI accession no. E-MTAB-11671) to highlight differences in gene expression profiles between the two diseases. **Results:** This analysis revealed 682 genes commonly upregulated, and 45 genes downregulated (adjusted *p*-value <0.05 and log2 fold change ≥2) in untreated MIS-C patients. The most differentially expressed genes were associated with chemokine, Toll-like receptor, NF-kappa B, tumor necrosis factor (TNF), and NOD-like receptor signaling pathways. By comparing the RNA profiles of MIS-C with those of Kawasaki disease, we identified a distinct expression signature associated with MIS-C. Specifically, we identified 24 genes consistently upregulated in pre-treated MIS-C patients relative to post IVIG treatment, or controls, while the same genes were significantly downregulated in Kawasaki disease. This gene signature is associated with processes such as cell signaling and regulation (*CEBPB-AS1*, *CMIP*, *SPI1*, *RARA*, *WBP2*, *MIR4785*), cytoskeletal organization and cell adhesion (*ZYX*, *CDC42BPA*, *DMTN*), immune response and inflammation (*SIGLEC5*, *OPTN*), and chromatin remodeling and gene expression (*HMGN1P3*, *MLLT1*, *HEMGN*). **Conclusion**: All those genes are novel and functional studies are needed to characterize their biological roles which may help delineate the clinical and immunological differences between MIS-C and Kawasaki diseases to support the accurate diagnosis and management of both diseases.

Keywords: multisystem inflammatory syndrome in children (MIS-C), gene expression signature, RNA sequencing, intravenous immunoglobulin (IVIG) therapy, Kawasaki disease

RC300

Identification of a Novel Pathologic Variant in PKHD1 Ciliary IPT Domain Containing *Fibrocystin/Polyductin* Gene (*PKHD1*) in a Patient Presenting with Non-cirrhotic Portal Hypertension

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Background: Hepatoportal sclerosis is a rare cause of non-cirrhotic portal hypertension, and its diagnosis can be challenging. We aimed to investigate the genetic factors underlying a case of non-cirrhotic

portal hypertension in a young patient. **Methods:** Long-read whole genome sequencing was performed using the Pacbio Revio system. The generated library was sequenced to obtain 22x coverage depth. A bioinformatics pipeline with alignment to GRCh38/hg38 genome assembly and a machine learning algorithm, DeepVariant, were used for variant calling. Two tools were used for tertiary analysis: GenomeArc Horizon Platform and ANNOVAR for variant interpretation based on American College of Medical Genetics (ACMG) guidelines (Genet Med 2015;17:405–423) and to identify clinically relevant rare variants. **Results:** A 30-year-old male was diagnosed with portal hypertension at age 25 with symptoms of recurrent variceal bleeding and gastritis, requiring multiple endoscopies and variceal banding. Two liver biopsies, four years apart, showed stage 2-3 fibrosis, without cirrhosis. Extensive investigations including viral, autoimmune, and hereditary panels were unremarkable. Imaging reported a small liver (12.7cm) and a single 10mm renal cyst. Laboratory testing showed normal liver function, mild transaminase elevation, and persistent thrombocytopenia. He was eventually diagnosed with idiopathic hepatoportal sclerosis. Subsequently, whole genome sequencing identified a pathogenic homozygous C>T substitution at chr6:52024676 in *PKHD1*. This genetic mutation explained his condition. The *PKHD1* gene encodes fibrocystin, a protein found in kidneys, liver, and pancreas. Mutations cause autosomal recessive polycystic kidney disease, with or without hepatic involvement. The current portal hypertension without hepatic cysts is a rare phenotype. **Conclusion:** This case emphasizes the importance of genetic testing in liver disease or portal hypertension when routine diagnostics are inconclusive. Identifying a *PKHD1* mutation refines diagnosis and guides management. Novel mutations can reveal novel phenotypes and provide insights into protein function, highlighting the role of personalized medicine in managing complex liver diseases.

Keywords: portal hypertension, *PKHD1* gene, hepatoportal sclerosis

RC208

Identifying Ultra-rare Damaging Variants in Cardiomyopathy Cases

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Background: Genetic testing has a crucial role in managing cardiomyopathies and channelopathies by identifying pathogenic variants that guide tailored follow-up and management. This study demonstrates

the effectiveness of long-read whole genome sequencing (WGS) in cascade screening for a family with a strong history of sudden death and hypertrophic cardiomyopathy (HCM), and in diagnosing long QT syndrome (LQTS) in a patient with syncope. **Methods:** Long-read WGS (Pacific Biosciences) was performed using whole-blood samples. Patient 1 diagnosed with HCM and a strong family history of sudden death in three siblings, underwent testing alongside her husband, parents, sister and two children. Patient 2, with a history of likely non-arrhythmic syncope and borderline QT interval prolongation on ECGs, had suspected LQTS. Variants were called via DeepVariant-v1.15.0 and annotated with GenomeArc-Horizon™ and ANNOVAR. The American College of Medical Genetics (ACMG) guidelines were considered for variant classification, focusing on rare variants having minor allele frequency (<0.5%) in gnomAD. Literature-based evidence was integrated into bioinformatic tools to support analysis. Finally, Sanger sequencing validated the detected variant. **Results:** WGS analysis of patient 1 and her family revealed a homozygous missense mutation in the proband in cardiac troponin-I gene *TNNI3* (c.484C>T), classified as likely-pathogenic per ACMG guidelines. This nonsynonymous mutation (*Arg162Trp*) was found in the proband, with her parents and two children being heterozygous but asymptomatic, providing reassurance to the family. *TNNI3*, expressed mainly in cardiomyocytes, coordinates cardiomyocyte contraction, and this variant has been reported in previous studies following an autosomal dominant inheritance pattern with incomplete penetrance (≈60%). For patient 2, a heterozygous likely-pathogenic missense mutation (c.2399G>A), causing an (*Arg800His*) substitution, was detected in the voltage-gated sodium channel gene (*SCN5A*), supporting LQTS diagnosis. *SCN5A* is vital for initiating cardiomyocyte action potentials and is linked to various autosomal dominant cardiac diseases, including LQT3, Brugada syndrome and atrial fibrillation. **Conclusion:** Long-read WGS can be useful in the screening, diagnosis, and personalized management of patients with confirmed or suspected cardiomyopathies and channelopathies.

Keywords: hypertrophic cardiomyopathy, whole genome sequencing, genetic variants, personalized medicine

RC173

Impact of COVID-19 on Medical Care Delay in the UAE

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Background: Delay of medical care and attention has become prevalent all around the world due to the COVID-19 pandemic. To many, receiving medical care during this time has been considered a

challenge. The aim of this study is to assess the impact of the COVID-19 pandemic on medical care delay among adults, and the reasons for medical delay. **Methods:** A cross-sectional study was conducted using convenience sampling for selection of Arabic/English-speaking UAE residents. A self-administered online questionnaire through social media was completed by 406 participants. It consisted of 24 questions on demographics, health condition, health insurance, medical care delay, and the impact of COVID-19 on the participant's life. **Results:** Of the 406 participants in the study, 71.67% were female, 28.33% were male, and 84.24% were from the 18-24 age group. Due to Covid-19 related concerns, 46.5% of participants experienced medical care delay , and 48.66% of those who experienced delays said that they experienced it during the lockdown period. Urgent care was needed by 22.09%, while the rest needed routine care. Of the 53.5% who did not experience delays, 92.1% reported that the appropriate medical care was available. **Conclusion:** Almost half of the participants experienced medical care delay during the COVID-19 pandemic, mostly in the routine care. Medical care delay was mostly because of COVID-19-related concerns. The COVID-19 pandemic did not noticeably affect the medical care availability. However, it affected the social, financial, and physical aspects of the participant's lives. Our recommendation is to conduct a follow-up study on a larger scale to assess the prevalence of medical care delays and their underlying factors.

Keywords: COVID-19 pandemic, medical care delay, UAE residents

RC10

The Impact of COVID-19 Vaccine on the Total Daily Dose of Insulin Among Patients with Type 1 Diabetes at Dubai Diabetes Centre

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Introduction: This study investigated the impact of COVID-19 vaccination on insulin requirements in individuals with type 1 diabetes. The COVID-19 pandemic presented significant public health challenges, particularly for those with underlying health conditions who were at an increased risk of severe outcomes. This research specifically addressed concerns about how COVID-19 vaccination influenced the total daily dose (TDD) of insulin in type 1 diabetes patients, a critical aspect of their diabetes management. **Methods:** The study employed a retrospective design, utilizing electronic medical records from the Dubai Diabetes Centre. It focused on insulin requirements, HbA1c levels, BMI, and insulin administration methods before and after vaccination. Data were collected for six months pre- and post-vaccination, and

rigorous data preprocessing techniques, such as mean and mode imputation, were applied to ensure dataset accuracy. Statistical analysis was conducted using independent samples t-tests, Chi-square tests, and multivariate logistic regression to identify factors that influenced changes in insulin requirements. Additionally, machine learning models, including logistic regression, decision trees, and random forest classifiers, were utilized to further analyze the data and predict the impact of vaccination on insulin needs. **Results:** Initial exploration of the dataset focused on the demographic and health characteristics of participants, including age, gender, BMI, and vaccination types. The study examined how these factors influenced changes in insulin dosage, HbA1c levels, and body weight. Findings revealed significant variations in insulin requirements post-vaccination, underscoring the need for personalized care strategies. **Conclusion:** Overall, this research contributed valuable insights into the management of type 1 diabetes in the context of COVID-19, informing clinical practices and aiming to improve patient outcomes during and beyond the pandemic.

Keywords: COVID-19 vaccination, insulin dose, type 1 diabetes, COVID-19 pandemic

RC293

Impact of Fluid Balance on Outcome in Patients with Severe Traumatic Brain Injury: A Retrospective Study

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Background: The role of fluid balance in critical care patients is well known. However, impact of fluid balance on outcome in critically injured severe traumatic brain injury (sTBI) not well studied. The aim of the study was to assess the relationship between fluid balance and clinical outcome with sTBI patients. **Methods:** Data was collected retrospectively from the electronic medical records of patient with sTBI whose GCS was below 8 and were admitted in ICU for at least three days. Outcome was determined in terms of functional outcome as well as mortality. Functional outcome was measured using the Glasgow outcome scale at the time of discharge. Independent sample T-test was performed to determine the mean difference of fluid balance for favorable and unfavorable outcome groups. Multivariate regression analysis tests were performed to determine the odds ratio for fluid balance impact on outcome. **Results:** The study included 56 patients (94.6% males and 5.4% females) with the mean age of 33.5 ± 8.8 years. More than 70% of patients had two or more systems affected by their injuries, with majority of the patients sustaining

thoracic and abdominal injuries. Seven patients had decompressive craniectomy, two had craniotomies, and two depressed elevation of skull fractures. More than 51% had intracranial pressure, monitored with a mean ICP of 9.4 ± 4.8 mmhg. Overall, mean fluid balance was + 400 ± 551.9 ml, with 51.8% of patients with positive fluid balance. 76.8% of patients had favorable outcomes, while 8.9% of them died. Mean fluid balance was significantly different between the two outcome groups: Mean difference = 849.14 ± 141.43 ml, $p<0.001$, 95% CI 565.46 to 1132.83. Univariate logistic regression analysis showed the significant impact of fluid balance on the patients' final outcome (OR 6.1, 95% CI 1.18 - 31.54, $p= 0.031$). **Conclusion:** sTBI is a grave disorder with significant mortality and morbidity. It frequently involves multisystem injuries and needs prolonged intensive care. Maintaining an optimal fluid balance appears to be significantly important in terms of achieving a good functional outcome in this patient population.

Keywords: fluid balance, severe traumatic brain injury, outcome, intracranial pressure, intensive care

RC241

Impact of Patient Awareness on Adherence to Inhaled vs. Oral Corticosteroids in Asthma Management: A Cross-sectional Study

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Background: Inhaled corticosteroids (ICS) are essential in managing persistent asthma and reducing attack frequency and its related complications when used properly. However, patient adherence to ICS is often suboptimal, influenced by their understanding of the treatment. This study evaluates the correlation between patient awareness of corticosteroids (both inhaled and oral) and their adherence to prescribed treatments. **Methods:** A cross-sectional study was conducted at the pulmonology outpatient department of Kings College Hospital, Dubai, including 107 asthma patients aged 18 and above. A self-administered questionnaire assessed patient knowledge of ICS and oral corticosteroids, including their potential adverse effects, and patient adherence to treatment. Statistical analyses, including chi-square tests and logistic regression, were used to evaluate associations and identify predictors of adherence. **Results:** Among the 107 participants, 67% reported good adherence to their ICS regimen. Sixty-four participants had good knowledge of the systemic effects of corticosteroids, 41 understood the difference

between inhaled and oral corticosteroids, and 44 were aware of differing side effects. Of these, 48, 32, and 33 reported good adherence, respectively. Logistic regression showed that knowledge of systemic effects significantly predicted adherence (OR: 3.249; *p*=0.017), while knowledge of corticosteroid types (OR: 2.113; *p*=0.133) and side effects (OR: 2.122; *p*=0.147) showed positive but non-significant associations. **Conclusion**: The findings indicate that patient awareness of inhaled corticosteroids is a significant factor in their adherence to asthma treatment. Enhancing patient education on the role and proper use of ICS could improve adherence rates, leading to better asthma control and reduced complications.

Keywords: asthma, inhaled corticosteroids, patient adherence, patient awareness, asthma management

RC41

An Implementation Model to Improve Oral Health for Children with Disabilities

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Introduction: Given the high global prevalence of disabilities in children, coupled with poor oral hygiene and a 45% rate of dental caries in this group, developing inclusive oral health strategies is critical. The study aimed to gain an in-depth understanding of the barriers and enablers of oral health for children with disabilities from the stakeholders and construct an implementation model to improve oral health for children with disabilities. **Methods:** This was a qualitative study involving 31 semi-structured interviews with parents and dental/non-dental health providers. Thematic analysis with an inductive approach was used for the analysis. **Results:** Five main themes and 10 subthemes emerged, resulting in the development of an implementation model. **Conclusion:** This study examined barriers and facilitators for oral health in children with disabilities, proposing practical solutions to improve access to quality dental care.

Keywords: oral health, children with disabilities, improve oral health, implementation model

RC24

The Incidence and Epidemiology of Calcaneal Fractures in a Level One Trauma Center in the UAE: A Retrospective Study from 2017 to 2022

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Background: This retrospective study investigated the incidence, mechanisms, severity, and management of calcaneal fractures in the UAE from 2017 to 2022. **Methods:** We analyzed data from Rashid Hospital's EPIC database for patients aged 18 and above diagnosed with calcaneal fractures. Demographic details, injury characteristics, treatment modalities, and associated injuries were extracted from Electronic Medical Records (EMR) and subjected to statistical analysis. **Results:** Among the 1082 cases analyzed, males comprised 87.3% of patients, with the majority aged 20 to 39. Falls accounted for 73.5% of injuries, predominantly resulting in closed displaced fractures. We performed surgical intervention in 28.4% of cases, primarily within a week of injury. Lower limb injuries predominated, with concurrent fractures commonly occurring in the lower limbs and spine. **Conclusion:** This study provides valuable insights into the UAE's epidemiology, severity, and management of calcaneal fractures. It underscores the importance of preventive measures targeting high-risk demographics and timely medical intervention. The findings highlight treatment strategies and resource allocation, emphasizing the need for further research and tailored interventions to optimize patient outcomes in calcaneal fracture management.

Keywords: calcaneum fracture, occupational injury, incidence, fall, surgical management

RC190

Incidence of *Clostridium difficile* Infection and Enteric Pathogens as a Cause of Pediatric Inflammatory Bowel Disease Flare Up: Retrospective Study in the UAE

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Background: Pediatric patients with inflammatory bowel disease (IBD) are at an increased risk of *Clostridium difficile* infection, which can trigger disease flare ups. Since treatment for flares and infections differs, identifying the infection and causative micro-organism is crucial. There is limited data on the frequency of CDI in pediatric IBD patients in our region. This study aims to assess the incidence and identify possible risk factors. **Methods:** We conducted a retrospective cross-sectional study from October 2017 to May 2024, which included 144 encounters of pediatric IBD patients who presented with exacerbation of GI symptoms suggestive of flare up, and underwent stool testing (PCR, *C. difficile* toxin detection (ELISA), and culture). We analyzed the association between categorical variables using the Chi-square test to identify the predictors of CDI. All tests were considered significant with a P-value < 0.05. **Results:** Stool PCR was positive in 45 encounters, with *E. coli* (11.8%) and *C. difficile* (10.4%) being the most common pathogens. Other pathogens detected were *Salmonella, Campylobacter, Norovirus, and Adenovirus*. Patients with Crohn's Disease had a higher rate of CDI than ulcerative colitis patients (17.2 vs 8.5%, P=0.151). Patients on biological therapies were significantly at a higher risk of developing CDI compared to patients who were not (17.9% vs 6.9%, P=0.042). We documented a higher rate of CDI in nonstructuring, nonfistulizing CD patients. Additionally, we observed an increased rate of CDI in patients using azathioprine and corticosteroids, though this finding was not statistically significant. Among patients hospitalized for flare-up symptoms, one-third were confirmed to have CDI. **Conclusion**: CDI was common among pediatric IBD patients with flare-ups, particularly in those with Crohn's disease, nonstructuring, nonfistulizing disease, biologics, and those hospitalized for their symptoms. Early detection of CDI and other enteric pathogens is essential to guide appropriate management and prevent the harmful use of immunosuppressants during acute infections.

Keywords: inflammatory bowel disease, *Clostridium difficile*, enteric infection, flare, stool PCR testing

RC280

The Influence of Various Types of Nail Polish on the Oxygen Saturation Measured by Pulse Oximetry

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Introduction: Pulse oximetry is a widely utilized noninvasive method for measuring arterial oxygen saturation (SpO_2). However, factors such as nail polish can impact the accuracy of these measurements.

This study aims to evaluate the effect of different types of nail polish, specifically both breathable and nonbreathable variants, various colors, and the number of layers on the accuracy of oxygen saturation measurements obtained through pulse oximetry. **Methods:** A randomized controlled study was conducted in May 2024 with 162 healthy female participants. In the study, each participant applied both breathable and nonbreathable nail polish of identical colors to different hands. SpO_2 levels were measured before and after the application of nail polish using calibrated pulse oximeters. **Results:** A preliminary pilot study has already been conducted, and the collected data yielded promising results. The results indicate that black and gray nail polishes significantly affect SpO_2 readings, with both breathable and nonbreathable variants showing a difference in the readings from the nail polish-free baseline. Red nail polish produced false positive results, while other colors did not show significant differences. This research is ongoing, with additional data collection underway. Consequently, we will have more comprehensive data to analyze the effects of both types of nail polish on oxygen saturation measurements, considering different colors and the number of layers applied. **Conclusion:** The findings suggest that certain colors, particularly black and gray, can interfere with SpO_2 measurements, whereas other colors may not affect accuracy. Comparisons with previous studies highlight consistent issues with black nail polish, affirming its significant impact on readings. This study underscores the need for awareness of how nail polish can influence pulse oximetry readings. Recommendations for clinical practices should include guidelines on nail polish use to ensure accurate SpO_2 measurements. Further research with a larger dataset will provide more comprehensive insights.

Keywords: pulse oximeters, oxygen saturation, nail polish, SpO_2 levels, breathable vs nonbreathable, randomized control study

RC166

Innovative Training Methods for Mass Casualty Incident Preparedness: A Scoping Review Protocol

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Background: Mass casualty incidents (MCIs) present significant challenges to emergency medical services and healthcare systems. Effective training methods are crucial to improve preparedness, individual resilience, and response capabilities. While traditional training approaches have been widely used,

newer methods such as virtual reality (VR), augmented reality (AR), mixed reality (MR), and 3D tabletop exercises offer more immersive and interactive learning experiences. **Methods:** This scoping review aims to map the existing literature on these innovative training methods for MCI response, evaluate their effectiveness, and identify implementation challenges and opportunities. The review will follow the Arksey and O'Malley framework, along with enhancements by Levac et al., and adhere to the PRISMA-ScR guidelines. A comprehensive search will be conducted in databases including PubMed, Scopus, PsycINFO, ERIC, CINAHL, and Google Scholar, using keywords related to MCIs, innovative training methods, and emergency preparedness. Studies published in English from January 2014 to present will be included. Two independent reviewers will conduct the selection process, and any discrepancies will be resolved through discussion or by a third reviewer. Data extraction will capture study characteristics, intervention details, outcomes measured, key findings, and implementation factors. **Results:** The data will be analyzed using both quantitative and qualitative methods. Descriptive statistics will summarize study characteristics and outcomes, while thematic analysis will identify common themes related to the effectiveness, benefits, and challenges of innovative training methods. **Conclusion**: This review aims to provide a comprehensive overview of how innovative training methods can enhance MCI preparedness. By synthesizing current evidence, the review will highlight the potential benefits, limitations, and implementation challenges associated with VR, AR, MR, and 3D tabletop exercises for MCI training. It will also identify opportunities for future research and development of these methods. The findings of this review will inform the development of evidence-based training protocols and guide future research in this rapidly evolving field. This review will support emergency services and healthcare institutions in adopting effective, scalable training solutions to improve MCI response capabilities.

Keywords: mass casualty incident, disaster, innovative training, artificial Intelligence, simulation training

RC253

Integrative Analysis of Long Isoform Sequencing and Functional Data Identifies Distinct Cortical Layer Neuronal Subtypes Derived from Human iPSCs

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Introduction: Generating human-induced pluripotent stem cells (hiPSCs) through reprogramming has transformed the fields of stem cell research and regenerative medicine, allowing researchers to study human brain development and the effects of mutations linked to psychiatric and neurological diseases at the cellular level. Several studies report direct cell differentiation protocols from hiPSCs to neural cells. Yet, researchers continue to face challenges such as reproducibility, low differentiation efficiency, and time required for establishing mature neuronal culture. Here, we present a new and more efficient neuronal differentiation protocol that does not compromise the purity of neurons generated from iPSCs, while effectively differentiating all cultured hiPSCs to neuronal cells. We evaluated two methods based on different culture systems routinely used to grow and maintain iPSCs: StemFlex Medium (SFM) and Essential 8 Medium (E8M). **Methods:** Neurons were validated using immunocytochemistry for mature neuronal markers and patch-clamp recordings. Long-read single-cell RNA sequencing was conducted to reveal the transcriptomic signatures of neuronal differentiation and maturation in iPSC-derived neurons from E8M culture. **Results:** iPSCs cultured in E8M efficiently generated different types of neurons in a shorter time and without the growth of undifferentiated non-neuronal cells in the culture as compared with those generated from iPSCs in SFM. Furthermore, these neurons were validated as functional units by confirming the expression of mature neuronal markers (i.e., NeuN, b tubulin, and Synapsin I) and whole-cell patch-clamp recordings. Long-read single-cell RNA sequencing confirms the presence of upper and deep layer cortical layer excitatory and inhibitory neuronal subtypes in addition to small populations of GABAergic neurons in day 30 neuronal cultures. Pathway analysis indicated that our protocol triggers the signaling transcriptional networks, which is important for the process of neuronal differentiation in vivo. **Conclusion**: The study highlights how iPSCs cultured in different mediums differed in the differentiation potential of mature neurons. Our findings support the use of E8M in maintaining iPSCs in a 2-D culture system to considerably reduce the amount of time and reagents' cost and efficiently generate functional neurons.

Keywords: iPSCs-derived neurons, long-read single-cell RNA sequencing, neural progenitor cells, neuronal differentiation, whole-cell patch-clamp

RC191

Interleukin-13-mediated Resistance in Glioblastoma Multiforme: Mechanisms and Implications

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Introduction: Glioblastoma multiforme (GBM), is a tumor of the brain that yet remains difficult to cure despite the exponential rise in therapeutic modalities in recent decades. The cytokine interleukin 13 (IL-13) and interleukin-13 receptor α chain variant 2 (IL13Rα2) work through many signaling pathways in GBM. **Methods and Results:** This review highlights the role of IL-13 in mitigating the aspects of cancer development and resistance to immunotherapy and is structured on the following aspects, which include: (I) evading apoptosis, (II) growth signals, (III) insensitivity to anti-growth signals, (IV) invasion and metastasis, (V) limitless replicative potential, and (VI) sustained angiogenesis. **Conclusion:** Current literature has expanded the understanding of IL-13 and GBM interaction, with developments of immunotherapy toward this relationship; however, recent clinical trial results are starting to gain momentum. This review showcases the significance of IL-13 and its future implications for GBM understanding and patient care.

Keywords: glioblastoma, interleukin-13, cancer, immunotherapy

RC278

The Interplay Between Vitamin D Deficiency and Polycystic Ovary Syndrome (PCOS)

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Introduction: Polycystic ovary syndrome (PCOS) is a common endocrine disorder in women of reproductive age, primarily characterized by metabolic and reproductive abnormalities. Ample evidence has established vitamin D deficiency as a factor that widely exacerbates standard features in PCOS, such

as insulin resistance, hormonal imbalance, and low-grade chronic inflammation. Gaining insight into such a relationship is also crucial for developing effective management. **Methods:** PubMed, Google Scholar, Science Direct, and ResearchGate were used to conduct a systematic literature review, with data selection based on articles published between January 2015 and July 2024. The targeted criterion of the human studies on this association between vitamin D and PCOS has been clinical, molecular, genetic, and environmental aspects; the articles written in English involve animals and endocrine disorders that do not directly relate to the current subject. **Results:** A comparison of the literature reveals that there is a very high prevalence of vitamin D deficiency in women with PCOS that may worsen the conditions of insulin resistance, irregular menstrual cycles, hyperandrogenism, and systemic inflammation. Thus, vitamin D directly influences significant molecular processes related to insulin signaling, hormone synthesis, and immune regulation; these findings make this vitamin deficiency central to the disease's development. It has been found that several studies have demonstrated that the supplementation of vitamin D can enhance metabolic and reproductive performance. Nonetheless, the best ways to administer the doses and how long they should be taken are still unknown. Genetic and environmental factors with customized therapeutic approaches are needed to moderate the vitamin D predisposition for PCOS. **Conclusion:** Thus, another way of ensuring the promotion of vitamin D deficiency is through the enhancement of the management of PCOS. In further studies, the development of supplementation strategies and the identification of personal treatment regimens should be the focus. When optimized as a form of treatment, vitamin D could rank among the best approaches fit for enhancing the quality of life of women with PCOS and reducing many health risks that come with this disease.

Keywords: PCOS, vitamin D, hormonal imbalance

RC102

Investigating the Anticancer Potential of Frondanol: A Nutraceutical Extract of the Atlantic Sea Cucumber *Cucumaria frondosa*

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Background: Frondanol is a nutraceutical lipid extract from the Atlantic sea cucumber, *Cucumaria frondosa*, known for its potent anti-inflammatory properties. It has been shown to reduce inflammation in adjuvant arthritis rat models and ear edema in mice. However, its potential anticancer activity remains

unexplored. Frondanol inhibits the 5-lipoxygenase (5-LOX) pathway, reducing leukotriene B4 (LTB4) production in human polymorphonuclear cells. Given that 5-LOX plays a critical role in arachidonic acid-stimulated cancer cell growth, this study aimed to investigate the anticancer potential of Frondanol in colorectal cancer cell lines by evaluating its effects on cell growth, apoptosis, and 5-LOX inhibition. **Methods:** We assessed the effects of Frondanol on cell growth and apoptosis in HT-29 and Caco-2 colorectal cancer cells using various in vitro assays. We also evaluated the 5-LOX inhibitory activity of Frondanol by measuring LTB4, a metabolite of the 5 LOX pathway, levels using an ELISA. **Results:** At dilutions between 1:20,000 to 1:40,000, Frondanol induced apoptosis in colorectal cancer cells by inhibiting growth, reducing clonogenic potential, and increasing Annexin V binding in Caco-2 and HT-29 cells. It significantly decreased the expression of the anti-apoptotic protein Bcl-2 while increasing the expression of the pro-apoptotic protein BAX. Additionally, Frondanol triggered cytochrome c release from mitochondria into the cytosol, leading to the activation of caspase-9, caspase-7, and caspase-3, as well as the cleavage of the caspase-3 substrate poly (ADP-ribose) polymerase. Furthermore, Frondanol significantly reduced LTB4 levels in the 5-LOX activity assay, confirming its 5-LOX inhibitory activity. **Conclusion:** These findings suggest that inhibiting the 5-LOX pathway with Frondanol induces apoptosis in an in vitro model of human colon cancer cells through the mitochondrial pathway, involving cytochrome c release and caspase activation. Frondanol, therefore, represents a potent and promising nutraceutical for treating colorectal and possibly other cancers, as well as a potential source of anticancer compounds for further research and development.

Keywords: Frondanol, anticancer, apoptosis, 5-lipoxygenase

RC217

Investigating the Impact of Diabetes on Endothelial Vascular Reactivity in Dubai: A Cross-sectional Study

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Introduction: Diabetes mellitus, affecting over 537 million people worldwide, significantly impairs endothelial function, leading to compromised vascular health. Endothelial cells, crucial for regulating

vascular activity, play a pivotal role in preventing cardiovascular diseases like atherosclerosis. Early detection and intervention of endothelial dysfunction are essential for mitigating the progression of vascular disease. The Vendys II device, a noninvasive FDA-approved tool, measures fingertip temperature variations to assess vascular reactivity, offering a valuable method for establishing a Dubai-specific baseline of endothelial function. **Methods:** This pilot cross-sectional study aimed to investigate the endothelial function and vascular reactivity index of diabetic and nondiabetic male participants using the Vendys II system. Participants, aged between 25 and 50, were randomized (1:1) and included diabetic patients diagnosed within 5 months from Dubai Diabetes Center and nondiabetic individuals recruited from Mohammed Bin Rashid University (MBRU). After a 5-minute occlusion of the right brachial artery, temperature variations and vascular reactivity were measured during cuff deflation. **Results:** The final analysis included 10 participants, 5 diabetic and 5 nondiabetic males. Non-diabetic males exhibited a higher mean vascular reactivity index (VRI) of endothelial function [2.41 (95% Confidence Interval (CI) 1.56 to 3.26)] compared to diabetic males [1.79 (95% CI 0.75 to 2.84)]. However, statistical analysis using an independent t-test did not reveal a significant difference [p=0.238 (95% CI -0.50 to 1.73)] due to the limited sample size. **Conclusion:** This pilot study demonstrates the potential of the Vendys II device in establishing a Dubai-specific baseline for endothelial function. Such a baseline would be invaluable for future epidemiological studies, predicting cardiovascular risk in diabetic patients, and supporting clinical observations of weakened vascular function. With an increased sample size, future research is expected to confirm a decreased mean vascular reactivity in diabetic patients, emphasizing the critical need for monitoring endothelial function in this population.

Keywords: diabetes mellitus, endothelial function, cardiovascular disease, Vendys II, vascular reactivity

RC274

Investigating the Potential of Integrating Pharmacogenetics Testing in the Treatment Optimization of Pediatric Patients with Chronic Diseases

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Introduction: The treatment of chronic diseases in pediatric patients poses challenges regarding drug efficacy and safety. Current therapeutic strategies rely on pharmacokinetic assessments and therapeutic drug monitoring (TDM), which correlate drug serum levels with clinical responses. However, TDM is reactive rather than predictive, leading to delayed treatment adjustments and potential side effects. For example, pediatric patients with inflammatory bowel disease or rheumatoid arthritis often receive anti-TNF-α biologics, but many experience a loss of response, resulting in relapses and adverse effects. Pharmacogenomics (PGx) offers a complementary approach by identifying genetic markers that influence drug efficacy, enabling the customization of treatments from the start. This study explores the potential of PGx to optimize drug therapy and improve efficacy and safety in pediatric patients with chronic conditions. **Methods:** This study aims to enroll 200 pediatric patients (newborn to 18 years old) from Al Jalila Children's Hospital, receiving treatment in gastroenterology, nephrology, rheumatology, and neurology. After obtaining consent, 3-5 ml blood is collected, and DNA is extracted and screened for PGx markers using the PharmacoScan Solution. Clinical response and TDM data will be used to classify patients as responders or nonresponders. Bioinformatics analysis will assess correlations between single nucleotide polymorphisms (SNPs) and treatment response to identify predictive markers. **Results:** To date, 100 patients (mean age 10.4 ± 3.2 years, 57% male, 71% Emirati) have been recruited. Of these, 43% are gastroenterology patients receiving anti-TNF-α biologics, and 38% are nephrology patients on tacrolimus. Pharmacoscan genotyping was performed with a yield of over 4600 markers in 1200 genes related to drug interactions. Patients were stratified by clinical, biochemical markers, and adverse effects over 52 weeks. Analysis is ongoing to identify SNPs and HLA types associated with treatment outcomes. **Conclusion:** Integrating PGx into pediatric treatment has the potential to significantly improve clinical outcomes by tailoring therapies to genetic profiles, leading to safer, more effective treatments.

Keywords: pharmacogenomics (PGx), therapeutic drug monitoring (TDM), chronic disorders, personalized medicine

RC23

Investigating the Role of Electronic Cigarettes in Oral Cancer using 3D Tissue-engineered Human Oral Mucosa Model

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Background: In the last decade, the popularity of e-cigarettes (ECs) or vaping has increased rapidly. Several studies have highlighted the alteration of DNA and dysregulated pathways associated with cancer, immune surveillance, and antioxidant defense upon EC exposure to oral mucosa, hence mirroring cancer-linked changes found in conventional tobacco smokers. Despite the alarming molecular data, the role of ECs in oral cancer lacks accurate risk assessment and requires further investigation using clinically relevant biological systems. This project aims to identify and validate potential biomarkers associated with cancer-related biological effects of ECs aerosol on a full-thickness three-dimensional (3D) tissue-engineered (TE) human oral mucosal model (H-OMM). **Methods**: Normal human oral fibroblasts were cultured in collagen gel to construct the connective tissue layer which was then layered by TR146 oral keratinocyte cell line at an air/liquid interface to generate a full-thickness 3D- TE- H-OMM. The epithelial surface of the 3D-model was directly exposed to the EC aerosol via a simulated activated peristaltic pump device. PrestoBlue tissue viability and histological analyses were applied. Cell culture secretome and extracted RNA will be used to integrate transcriptomics and metabolomics as well as other molecular approaches. **Results:** The customized EC exposure device and the 3D oral mucosal model mimicked the clinical situation when the hot and concentrated aerosol encounters the surface of the oral mucosa. Preliminary results showed that exposure to EC aerosol reduced the viability of the oral mucosa tissue. **Conclusion:** The 3D tissue-engineered oral mucosal model can be a clinically relevant in-vitro test system for the detection and evaluation of potentially harmful biological effects of ECs on human oral mucosa without the need for animal studies or complicated clinical trials.

Keywords: electronic cigarettes, tissue engineering, human oral mucosa, biomarkers, metabolome

RC152

Investigating the Therapeutic Potential of Myristoleic Acid in Pancreatic Cancer

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Background: Chemotherapy and radiotherapy are conventional approaches for various malignancies. However, these therapies often fail to induce apoptosis and contribute to cancer recurrence, which eventually leads to patient mortality. While several strategies aim to control and suppress malignancies, the administration of 5-lipoxygenase (5-LOX) inhibitors stands out due to their targeted effect inducing apoptosis in cancer cells, without impacting normal tissues. A chromatographic study of crude lipids from the Atlantic Sea Cucumber, *Cucumaria frondosa* identified several fatty acids with anticancer effects. Of these myristoleic acid was the most potent. Myristoleic acid, is a naturally biosynthesized long-chain, omega-5 fatty acid, in the food chain, with anti-inflammatory and antimicrobial properties as well as inhibition of cell growth. In the current study, the effects of myristoleic acid on pancreatic cancer cell growth, induction of apoptosis, and effects on 5-LOX activity were determined. **Methods:** Viability, colony formation, apoptosis by annexin V-FITC staining and flow cytometry, cell cycle, western blot, in situ tissue TUNEL, in vivo transplantation in athymic mice, and 5-HETE and LTB4 ELISA. **Results:** The results showed that myristoleic acid caused time- and concentration-dependent inhibition for pancreatic cancer cells (PANC1, AsPC-1, and MIA PaCa-2) with (IC50) of approximately 2 µg/ml (~10 µM). It significantly limits cancer cell colony formation abilities. Cell cycle analysis revealed an increase in apoptotic cells coinciding with arrest in the G0/G1 phase. Apoptosis was confirmed by annexin V staining and activation of caspase-3 by cleavage. In vivo studies, myristoleic acid markedly inhibited the growth of pancreatic subcutaneous transplants in athymic mice. In situ tissue TUNEL assay showed a marked increase in apoptosis in tumor tissues. Finally, the production of the 5-LOX metabolites, 5-hydroxyeicosatetraenoic acid (5-HETE), and leukotriene B4 (LTB4) was significantly decreased. **Conclusion:** Myristoleic acid has potential anticancer effects on pancreatic cancer, this appears to be mediated, at least in part, by inhibition of 5-LOX. These novel approaches suggest a potential use of myristoleic acid or related compounds for the treatment or prevention of pancreatic or other cancers.

Keywords: myristoleic acid, apoptosis, 5-lipoxygenase, 5-hydroxyeicosatetraenoic acid (5-HETE), Leukotriene (B4)

RC95

Iron Deficiency Anemia Following Multiple Bariatric Surgeries: A Case Report

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Background: Anemia is a major global health issue affecting all ages. Iron deficiency anemia is common after bariatric surgery. In addition, obesity causes chronic inflammation, leading to low serum iron levels. This case report describes a patient with normal hemoglobin prior to bariatric surgery who used to be a regular blood donor. After receiving gastric bypass surgery for weight loss, the patient was presented with long-term severe iron deficiency anemia. This report aimed to focus on problems related to weight loss surgical procedures and the importance of dietary interventions. **Case Presentation:** A 45-year-old female suffering from morbid obesity developed severe iron deficiency anemia after bypass surgery. The patient had no specific complaints after gastric banding. In 2019, she chose to undergo gastric bypass surgery because of difficulties in weight reduction to below 90 kg (130 to 90 kg, with the BMI of 30 – 39.9). She was fully alert and oriented without any neurological deficits. Physical examination was notable for findings typical of anemia, marked pallor with pale mucus membrane, palpitations, and hair fall. Her initial laboratory results showed a critically low hemoglobin indicating severe iron deficiency. After further diagnostic workup, her profound anemia was likely attributed to a sedentary lifestyle and lack of proper nutritional uptake. The patient was regularly monitored for nutritional deficiency with a specific focus on iron levels due to malabsorption after bypass surgery. Dietary supplements were prescribed. After switching from oral to IV iron therapy, gradual improvement in her symptoms and hematological parameters were recorded over the following years. As of February 2024, the patient's Hb stabilized at 13, with normal ferritin and iron levels. **Conclusion:** This case underscores the risk of developing iron deficiency anemia after bariatric surgeries, necessitating regular monitoring and proactive management. Early recognition and treatment of iron deficiency can prevent severe anemia and improve overall patient outcomes post-bariatric surgery.

Keywords: IDP-iron deficiency anemia, BS - Bariatric surgery, Rouxen- Y Gastric bypass (RYGB)

RC290

Is There an Association Between Brugada Pattern ECG and Coronary Artery Anomalies?

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Background: Brugada syndrome is classified as an inherited cardiac channelopathy. Recently several articles have attributed Bragada pattern electrocardiogram (ECG) changes to coronary artery disease.

Our case reports a middle-aged gentleman, who presented with typical cardiac chest pain with ECG consistent with the Brugada pattern. He was found to have an anomalous left main coronary artery originating from the right coronary sinus with no significant coronary artery lesion. Our case highlights and discusses the importance of coronary artery evaluation in patients with Brugada ECG.

Keywords: Brugada, coronary anomalies, ECG

RC199

Ivan Petrovich Pavlov: Landmarks and Legacy

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Background: This historical account reviews the course and lasting impact of Ivan Petrovich Pavlov in neurosurgery. **Methods:** The writing of this project was sparked by the discovery of original scientific and bibliographical information about Pavlov. It is a thorough review of the literature on Pavlov's scope and depth of his prior works. **Results:** Beginning with Pavlov's life as a young priest at an Orthodox Russian church, the project follows through his life as he develops himself as an academic physician, venturing into the field of medicine with the influence of Darwin's work and his interest in natural sciences. His growing interest is depicted in this project, as he becomes a professor of pharmacology and physiology. Pavlov later produced prominent work through his laboratory experiments on animals with digestive physiology, conditional reflexes, and neuronal understanding of the human brain. Furthermore, Pavlov's relationship with one of the world's greatest neurosurgeons, Harvey Cushing, is depicted in this writing as the barriers of distance, ideology, and language did not keep them from recognizing each other's importance in medicine. This project mentions his work as a human rights activist and the impact he had on the scientific community in the Soviet Union and worldwide. **Conclusion:** Our article provides glimpses into the personality of Ivan Petrovich Pavlov and his marked impact on neurosurgery.

Keywords: Ivan Petrovich Pavlov, neurosurgery, neurophysiology, classical conditioning

RC72

Knowledge, Attitude, and Practices in Basic Life Support Among Residents of UAE in 2024: A Cross-sectional Study

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Introduction: Cardiac arrest is a critical life-threatening emergency occurring unpredictably at any age. Basic life support (BLS) is medical care used until proper treatment can be administered. BLS helps 50,000 people annually to survive until professional help arrives, hence, public awareness is important. **Methods**: Our study was done using a cross-sectional study design. Surveys were distributed among residents in UAE between the age of 18 and 65 years. Our sample size was 385 using Fisher's formula of which we could reach 241. The data were collected through a self-administered questionnaire and were analyzed by SPSS. **Results:** 56% of participants understand that during cardiac arrest, the absence of pulse can be determined by not feeling a pulse in the vessels of the neck and arm. 47% know that absence of breathing can be determined by not having any chest movement, breathing sounds and when no air is coming out of the mouth. Conversely, 61% had various reasons for their lack of knowledge about cardiopulmonary resuscitation (CPR). The biggest reason was a lack of knowledge about where to get the training from. The findings from the Pearson correlation conducted in this study show that education level has a significant influence on the level of awareness and knowledge of BLS. The p-value obtained for the test was 0.034, indicating a significant relationship between educational levels and awareness and knowledge of BLS. Further, we found that 52% have never learned BLS. Of those who did BLS, more than 45% correctly answered questions about the practice of BLS, this shows that people retained their knowledge. **Conclusion:** From our study, we concluded that while people were aware of BLS, not many were trained. Given the number of cardiovascular events taking place per day, the public has little knowledge that they can contribute. The majority would like to implement the course in the curricula and the workplace. Through our study, we hope to help the UAE achieve its goal in public health.

Keywords: emergency medicine, basic life support, public health awareness, cardiopulmonary resuscitation

RC311

LECT2 Renal Amyloidosis: A Case Report of a Rare Disease

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Introduction: Leucocyte chemotactic factor 2 amyloidosis (ALECT2) is a rare type of amyloidosis. This novel form primarily involves the tubulo-interstitium of the kidneys and was first described in 2008. **Case Report**: A 53-year old male with hypertension and CKD Stage 3 of uncertain etiology for the last 3 years presented to our unit. He reported NSAID use for gouty arthritis. His family history was negative for renal illness. He was asymptomatic. O/E: BP: 126/ 87 mmHg. The examination was unremarkable. Laboratory investigations showed Hb: 14.2 g/dl, creatinine: 2.29 mg/dl, eGFR: 33.3ml/min, urea: 68mg/dl, K: 4.7 mmol/L, HbA1C: 5.6 %, urine routine: Protein: neg, WBC: 0-5, RBC: 0-2, urine culture: Sterile. Urine protein/creatinine ratio: 48 mg/g. Ultrasound revealed normal-sized kidneys. He underwent a kidney biopsy revealing 32 glomeruli, 18 of which were globally sclerotic. Trichrome stain revealed moderate fibrosis. Interstitium was expanded by amorphous Congo-red positive material consistent with amyloid, which also involved the small arterioles without any glomerular involvement. IF: revealed trace mesangial staining for IgA, IgM, and C3. Electron microscopy revealed fibrillary material consistent with amyloid in the tubulo-interstitium. Mass spectrometry identified the subtype as LECT2 amyloidosis. Serum amyloid protein and AA amyloid were negative. Serum-free light-chain assay was normal. He was evaluated for systemic involvement by amyloidosis. ECHO cardiography revealed normal LV ejection fraction of 55-60%. The ultrasound abdomen revealed a fatty liver. Genetic screening for amyloid variants was negative. The whole genome analysis is planned. He is on follow-up, is asymptomatic, and maintains stable renal functions. **Conclusion:** A male hypertensive patient with unexplained CKD stage 3 was diagnosed to have LECT2 amyloidosis on kidney biopsy. We report this case to highlight the important role of kidney biopsy in patients with unexplained CKD (even with minimal proteinuria or hematuria) and raise awareness about this rare disease.

Keywords: amyloidosis, kidney, LECT2

RC256

Listeria Meningitis Complicated by Hydrocephalous: Case Report and Review of Literature

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Background: *Listeria monocytogenes* is a Gram-positive bacterium typically transmitted through contaminated food and water, notably in ready-to-eat products like smoked fish, meat, and cheese. While Listeria predominantly affects immunocompromised individuals, rare cases of meningitis can occur in otherwise healthy people. Complications such as ventriculitis, hydrocephalus, cranial nerve palsies, and cerebrospinal abscesses can lead to high mortality. This case study highlights the challenges of managing *Listeria* meningitis and its severe complications in a previously healthy 48-year-old man. **Methods:** A 48-year-old male presented to an emergency department with fever, agitation, vomiting, headache, neck stiffness, and gastrointestinal symptoms. Cerebrospinal fluid (CSF) and blood cultures confirmed *Listeria monocytogenes* infection. Initial treatment included intravenous ampicillin and gentamicin, later escalated to meropenem. Despite initial improvement, the patient's condition deteriorated with confusion and right-sided hemiparesis, leading to urgent radiological imaging that revealed obstructive hydrocephalus. A ventricular shunt was inserted, and treatment included antibiotics and external ventricular drainage (EVD). **Results:** Following the initial improvement, the patient's condition worsened with fluctuating consciousness, right-sided hemiparesis, and spasticity. Imaging showed meningoencephalitis with diffuse ventricular dilation and ischemic changes. Despite aggressive management, the patient's health continued to decline, and he eventually expired. **Conclusion:** This case underscores the importance of early recognition and management of hydrocephalus as a potential complication of *Listeria* meningitis, even in previously healthy individuals. Timely intervention and comprehensive care are crucial for managing such complex cases. This case highlights the severe challenges in managing *Listeria* meningitis and its complications, emphasizing the need for early detection of hydrocephalus and prompt, aggressive treatment strategies.

Keywords: *Listeria monocytogenes*, meningitis, hydrocephalus, ventriculitis, cerebrospinal fluid

RC122

Little Falcon: A Prospective Study to Evaluate the Diagnostic Efficacy and Clinical Utility of Rapid Whole Genome Sequencing (rWGS) for Critically Ill Patients in the UAE

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Introduction: Evidence from Western countries is increasingly supporting the use of rapid whole genome sequencing (rWGS) as a comprehensive, cost-effective testing modality for timely diagnosis and tailored management of critically ill children with rare diseases. For the first time in this region, we introduce rWGS to the neonatal and pediatric care units in Dubai public hospitals, caring for a diverse patient population of Middle Eastern, North African, and Asian origins, to generate the required evidence to support the utilization of rWGS in these highly genetically under-represented and underserved populations. **Methods:** 200 consecutive patient-parent trios will be enrolled in the study according to a predefined set of inclusion and exclusion criteria in a time frame of 24 months. Enrolled patients will either be critically ill infants or children < 18 years of age in intensive care units with illnesses of unknown etiology. Blood samples obtained from consented families are referred to the genomics facility within Al Jalila Children's Hospital for rWGS processing and analysis. Candidate variants are immediately communicated with the care team to reach a consensus diagnosis. We aim for a turnaround of 3-5 days. In addition, we will incorporate the reporting of secondary/incidental findings, as well as clinically significant variants as part of newborn, carrier and pharmacogenomic screening to further assess the full utilization of genomic data in the general population health. Finally, we will obtain additional samples from patients who remain undiagnosed after rWGS for further genomic, epigenomic, transcriptomic, and proteomic analysis using long-read DNA and RNA sequencing and high-plex, high-throughput proteomics (SomaLogic). **Preliminary Results**: To date, 51 patients, mostly newborns and presenting with variable phenotypes, were enrolled in the study. We returned positive diagnoses in 49% of the cases with the highest yield observed in Asians (56%) followed closely by Emiratis (47%) and Arabs (46%). Clinically, the highest diagnostic rate was observed in patients with cardiac presentations. The average turnaround time was 86 hr. A total of 28 diagnoses and 32 diagnostic variants were recorded out of the 25 positive/likely positive cases. Most of the encountered diseases (71%) were autosomal recessive, consistent with the enriched regions of homozygosity carried

by populations of the Middle East. Diagnostic variants were mostly SNVs and indels, though around 20% were larger CNVs. Screening for additional genomic data revealed that 61% of the patients are carriers of at least one variant associated with drug response (pharmacogenomics) and that 53% carry at least one autosomal recessive condition. Interestingly, a secondary finding of maternally inherited known pathogenic BRCA1 variant was reported in a case of male newborn, leading to clinically actionable outcomes in this family. Further investigation of undiagnosed cases identified 8 novel candidate genes, not yet linked to any diseases. Based on a survey questionnaire distributed to clinicians following result reporting, feedback showed that rWGS results, whether positive or negative, have contributed to clinical decision-making in at least 28.5% of the cases, in terms of management, medication, or length of stay. **Conclusion**: Our preliminary results suggest that implementation of rWGS in the Middle East significantly enhances the diagnosis and clinical management of critically ill pediatric patients and provides additional genomic information which is expected to guide personalized medication prescription, preconception or family planning, as well as early preventive surveillance programs to mitigate medically actionable findings in relevant families. Finally, enrolling undiagnosed patients in this setting for integrative multi-OMICs-based approaches will help uncover novel genes and variations associated with previously undescribed syndromes.

Keywords: rWGS, NICU, PICU

RC134

Magnetic Management of Hematoma Auris

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Introduction: The auricular hematoma of the pinna occurs secondary to trauma, it has a history that dates back to ancient Greece. It presents a therapeutic dilemma for ENT surgeons, and if untreated it will ultimately result in a deformity commonly known as 'cauliflower ear.' Several methods have been described in the literature for the management of acute auricular hematoma. We reviewed the pathogenesis of auricular hematoma, described the various treatment modalities, and reported a case in which a magnet was used to prevent recurrence of hematoma. **Case Report**: A 14-year-old boy came to the outpatient clinic with complaints of bulging in the right ear. The child plays a contact sport Jiu-Ju-Jitsu. Other parts of history are unremarkable. Examination of the right ear revealed a large hematoma of the auricle extending to the antihelix. tympanic membranes normal. Left ear was normal. The hematoma was evacuated. A

magnet was used to hold the pressure dressing. Hematoma auris occurs due to a hematoma arising beneath the perichondrium of the ear. It requires adequate drainage and tight pressure applied to the site for several days. The important detail is the application of a post-procedural compression dressing to prevent recurrence and ensure that the ear contour is maintained. **Conclusion:** Magnet pressure dressing provides a rigid splint that molds to the contours of the ear, is easy to use, convenient, cost-effective, and has no recorded infection or recurrence. It also permits the maintenance of adequate wound care with coexisting auricular injuries.

Keywords: hematoma auricle, magnet, cauliflower ear

RC216

Making Clinical Teaching Visible—A Time and Motion Study of Hospital Rounds in Undergraduate Medical Teaching

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Background: Teaching medical students in the clinical setting is frequently perceived as a demanding commitment by attending physicians. There is a paucity of data measuring the duration and efficacy of teaching during clinical rounds. The aim of this study was to assess both the quantity and quality of clinical teaching time dedicated to medical students on hospital ward rounds. **Methods:** A cross-sectional direct structured observational study was conducted during the morning rounds of attending physicians involved in teaching undergraduate medical students at three different clinical facilities in three different specialties. A validated observational tool was used by four observers to record teaching time and quality indicators. **Results:** In terms of teaching duration, it was observed that 25% of the total morning round time was allocated to teaching. However, this measure varied widely between different physicians and specialties. As for teaching quality, actions categorized as active teaching by the teachers were observed in 19% of the interactions observed per round, while active learning by the students was observed in

17% of the interactions per round. Teacher high-cognition interactions were similarly observed in 23% of actions per round, while student high-cognition interactions occurred in 16% of actions per round. Internal medicine tended to score higher than both pediatrics and surgery in terms of percentage teaching time as well as the percentage of active teaching observed per round. Using liberal criteria, rounds characterized overall as predominantly active or high cognition by teachers and students were observed in only 21% of the total number of rounds. **Conclusion:** These results indicate that the percentage of teaching time during ward rounds is highly variable, and that round teaching generally consists of passive and low-cognition interactions. Future work is needed to train clinical faculty to achieve a desired level of teaching quality, and to determine if there are any changes in teaching time commitments and student outcomes.
Keywords: clinical teaching, hospital rounds, time and motion study

RC150

MCQs vs. Open-ended Questions: Which Drives Deeper Learning in TBL?

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Background: MCQs are widely used in team-based learning (TBL) for efficiency, but they may encourage surface learning and guessing. Open-ended questions are suggested to push students toward deeper thinking by removing cues, but their effectiveness is not conclusive. **Methods:** Two studies compared MCQs with open-ended questions. The first examined the impact on performance and retention, while the second explored their influence on student engagement and deeper learning. **Results:** In the first study, MCQs led to better individual scores and showed no clear advantage for open-ended questions in terms of retention. In contrast, the second study found open-ended questions enhanced team performance in application exercises and encouraged deeper engagement, though less prepared students struggled. The two studies offer contradictory insights: 1) highlights the limited impact of open-ended questions on retention; 2) suggests they drive better application and discussion. **Conclusion:** While open-ended questions seem to encourage deeper, the findings are mixed across different contexts. More research is needed to determine how question types align with specific topics and the nature of discussions required for optimal learning outcomes in TBL.
Keywords: team-based learning (TBL), open-ended questions, multiple-choice questions (MCQs), critical thinking, deep learning

RC276

A Mercurial Twist to Membranous Nephropathy: An Interesting Case Report

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Introduction: Human exposure to mercury can lead to various health issues, including pulmonary, neurological, and nephrotoxic effects, stemming from sources such as medications, hair dyes, facial creams, and vapors. **Case Report:** A 19-year-old Emirati woman, who had been in good health, experienced fever and a skin rash. Serological tests ruled out acute viral exanthems. Three months later, she returned with swelling in her legs and was subsequently diagnosed with nephrotic syndrome. Examination revealed: Weight: 53 kg, Pedal edema present. System examination: unremarkable. Laboratory investigations showed: Hb: 12.4 g/dl, creatinine of 0.53 mg/dl, S. albumin: 1.8 g/dl, urine routine: Protein: 3+, WBC: 10-15 10^3/uL, RBC: 3-5 10^3/uL., 24-hr urine protein: 31,623 mg/day, ANA, ANCA, Serum complements, anti-double stranded DNA: Negative, HIV, HBs Ag, HCV ab: negative, renal ultrasound: Normal size and echogenicity of both kidneys. She underwent a left kidney biopsy which revealed 21 glomeruli with PLA2R membranous nephropathy, likely secondary. Immunofluorescence revealed IgG and C3 granular positivity. The possibility of mercury toxicity from skin-lightening facial cream use was considered. Mercury levels in the blood and urine were 9.3 mg/L (normal up to 2 mg/L) and 93 mg/L (normal up to 1 mg/L), respectively, confirming the diagnosis of mercury toxicity. The patient was treated with two doses of IV Rituximab and advised to stop mercury-containing facial creams. Till these measures took effect, she commenced on Cyclosporine 75 mg bd and Prednisolone in tapering doses for proteinuria reduction. Two months after the initial diagnosis, she achieved partial remission with a reduction in proteinuria to 4.2 gr/day. **Conclusion:** We report a patient with nephrotic syndrome and normal renal functions, diagnosed to have PLA2R-negative membranous nephropathy, secondary to mercury toxicity from skin-lightening facial cream use. Cessation of cream use and treatment with immunosuppressive medications resulted in partial remission within 2 months of treatment.

Keywords: mercury toxicity, membranous nephropathy, nephrotic syndrome

RC180

Metabolomic Profiling of NIST SRM 1950 Human Plasma Standard for Biomarker Discovery Reference

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Introduction: Metabolomic profiling using liquid chromatography-tandem mass spectrometry (LC-MS/MS) is a powerful method for identifying and characterizing metabolites in complex biological samples. This approach leverages LC-MS/MS to selectively target metabolites and provides detailed information on their structure and abundance. The NIST SRM 1950 reference human plasma standard, developed by the National Institute of Standards and Technology (NIST), is a certified reference material to ensure accuracy and consistency in metabolomics research. Untargeted metabolomics based on LC-MS/MS is a powerful method but challenging to set up. Herein, we demonstrate that we can achieve untargeted/global metabolomic profiling with nano-scale sensitivity by applying LC-MS/MS profiling to the NIST SRM 1950 standard. This approach can be used for biomarkers discovery and developing clinical diagnostics, ultimately advancing personalized medicine and improving our understanding of human health and disease. **Methods:** The NIST SRM 1950 reference human plasma was extracted following a previously established protocol. Analysis was conducted on a Vanquish UHPLC coupled with an Orbitrap Exploris 480 mass spectrometer (positive mode), using a nanocolumn for chromatographic separation. Data processing was performed with compound discoverer. **Results**: We assessed the nanoflow LC-MS/MS method's performance for chromatographic separation and metabolite characterization using the NIST SRM 1950 reference human plasma. Preliminary results showed 381 metabolites annotated by MS/MS matching with the NIST 2023 Tandem Mass Spectral Library and 191 endogenous metabolites with the mzCloud Mass Spectral Library, including amino acids, organic acids, and fatty acids. **Conclusion:** Metabolomic profiling using nanoflow LC-MS/MS is a promising approach for biomarker discovery, as demonstrated by the analysis of the reference plasma standard.

Keywords: metabolomics, mass spectrometry, human plasma, precision healthcare

RC287

Microbiota Metabolites Modulates Monocytes in Triple Negative Breast Cancer

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Introduction: Breast cancer is the primary cause of mortality in women. Although research has progressed in stratifications for proper diagnosis, it remains one of the most complex tumors, with a very heterogeneous microenvironment. Accumulated evidence suggests anticancer effects of the metabolite-derived microbiota in tumor microenvironment (TME). When imbalanced, the metabolites-derived microbiota reprograms the immune response, in turn mediating chemo- and therapy-resistance in patients. The recruitment of the innate immune cells hinges on the cytokines secreted, where it has been reported to acquire immunosuppressive factors. Short-chain fatty acids (SCFAs) such as butyrate, acetate, and propionate have been identified for their regulatory role in the inflammatory response, in various cancer types including liver, colon, and lung. In breast cancer, the involvement of SCFAs mediates suppression in tumor growth and regulates monocytes chemotaxis. Objectives: Metabolites-derived microbiota modulates the recruitment of monocytes in triple-negative breast cancer. **Methods:** We investigated the role of butyrate and LPS in breast cancer cell lines, to look for the effect on cell proliferation by using different concentrations of butyrate w/o LPS. Additionally, the cell cycle assay was used to compare the subcycling across the different treatments of butyrate/LPS in cancer cell lines. Further to observe the chemotaxis ability of immune cells, cell migration assay was performed in the presence of SCFA by using the Bt549, triple-negative breast cancer model. **Results:** Different butyrate concentrations have displayed clear inhibition in breast cancer cell lines. Moreover, butyrate was shown to induce apoptosis through the cell cycle as indicated by a higher sub-G1 number, compared to other treatments. Specifically, the migration of monocytes was also not observed by using trans-well in the presence of SCFA in case of Bt549 cell line. **Conclusion:** All in vitro results have consistently shown that butyrate suppresses the cancer cells proliferation and secretions.

Keywords: microbiota, SCFAs, breast cancer, monocytes, immunosuppressive

RC257

Molecular Adsorbent Recirculating System (MARS) in Liver Failure: Clinical Applications and Comparative Analysis

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Introduction: The molecular adsorbent recirculating system (MARS) is an extracorporeal liver support device designed to mimic the liver's detoxification process by removing both water-soluble and protein-bound toxins. Initially developed as a bridge to liver transplantation, MARS has become a crucial intervention in the management of acute liver failure (ALF) and acute-on-chronic liver failure (AoCLF). This abstract reviews the clinical applications of MARS, elucidates its mechanism of action, and compares its effectiveness and cost-efficiency with alternative liver failure treatments such as standard dialysis and liver transplantation. The objectives of this study are to: Review the clinical scenarios where MARS is most effective. Compare MARS with other liver failure treatments in terms of detoxification capabilities, patient outcomes, and cost-effectiveness. **Methods:** A comprehensive literature review was conducted via Pubmed and Google Scholar, analyzing clinical trials, case studies, and reviews on the use of MARS in managing liver failure. The outcomes of MARS were compared to those of standard dialysis and liver transplantation in terms of patient stabilization, safety, and long-term prognosis. **Results:** MARS demonstrated a superior ability to remove protein-bound toxins, such as bilirubin and bile acids, which conventional dialysis systems cannot filter. Clinical studies suggest that MARS can effectively stabilize patients with ALF and AoCLF, providing a bridge to recovery or transplantation. However, the high cost and complexity of the system limit its widespread adoption. Compared to liver transplantation, MARS offers temporary support but is not a definitive solution. **Conclusion:** MARS represents a significant advancement in liver failure management, particularly in critically ill patients requiring detoxification support. While its clinical benefits are clear, further research is needed to address cost-effectiveness and optimize its use alongside other liver support therapies. As a bridge to liver transplantation or recovery, MARS remains an important yet financially challenging tool in modern hepatology.

Keywords: molecular adsorbent recirculating system (MARS), liver failure, acute liver failure (ALF), acute-on-chronic liver failure (AoCLF), extracorporeal liver support

RC288

Monolithic Masking Potential of Lithium Disilicate and Zirconia-reinforced Lithium Silicate

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Introduction: Masking a single discolored tooth poses an esthetic challenge in dentistry. Recently, a novel pressed ceramic has been introduced with the addition of zirconia. No comparison has been made to assess which press ceramic is superior in masking discolored substrates in a monolithic situation. The aim of the current study was to assess the masking potential of lithium disilicate (L-DIS) in comparison to zirconia-reinforced lithium silicate (ZLS) over two simulated substrates; (1) nickel-chrome (NiCr) post, and (2) discolored root shade (ND9). **Methods:** Low translucency (LT) A1 ingots (control) from each ceramic were pressed and sectioned into thicknesses of 0.6 mm, 0.8 mm, and 1.0 mm by an IsoMet (Buehler IsoMet High Speed, Precision Cutter 1000 Saw with Diamond Wafering Blade). The samples were placed over a NiCr cylinder and ND9 discolored stump shade. A spectrophotometer (VITA Easyshade Advance 4.0) was used to determine the Delta E (ΔE) values. The ΔE values comparing the control with the samples were used to determine masking ability. Visual color comparison and unpaired t-tests were carried out to assess the masking ability. **Results:** Visual color comparison and ΔE values were based on both an instrumental and visual assessment; with an acceptable ΔE value being < 1.8. This showed that L-DIS was unable to sufficiently mask due to all values being > 1.8. ZLS masking ability was acceptable due to a low ΔE value for ND9 as well as 1.0 mm NiCr. Additionally, significant differences were present in the unpaired t-tests, resulting in a p-value of < 0.05 for all ceramic thicknesses against ND9 and NiCr. **Conclusion:** Despite the limitations of the study, ZLS shows promise in masking ability. However, a more robust study design is required to fully appreciate this.

Keywords: discoloration, crowns, ceramics, masking, esthetic dentistry

RC93

More Than Just Sound: The Role of Auditory Input in Maintaining Balance

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Background: Dizziness is the most common complaint of patients over 65 years consulting a physician. Presbyacusis affects 65% of Canadians between 70–79 years of age. The inner ear plays a crucial role in both hearing and balance, suggesting a potential link between the two. While the relationship between auditory information and postural stability has been explored, more research is needed to understand this connection. The aim of the study was to investigate the impact of auditory input on postural stability in both normal-hearing individuals and hearing aid users. **Methods:** Participants underwent balance tests (Romberg and tandem stance) with and without earplugs for the normal hearing group, and with and without the hearing aids for the hearing-impaired group, while exposed to point-source noise. Sound localization abilities were assessed using high- and low-frequency narrow-band noises. **Results:** Normal-hearing individuals demonstrated no significant difference in postural stability with or without auditory input. However, hearing aid users exhibited significantly improved balance performance when wearing their hearing aids. **Conclusion:** Auditory input appears to play a more significant role in maintaining postural stability for individuals with hearing loss. Hearing aids can effectively enhance balance function in this population. Further research is needed to explore the underlying mechanisms and potential clinical implications of this relationship.

Keywords: postural stability, auditory input, sound localization, hearing aids

RC201

MS-Omics Core Facility Services – Center for Applied and Translational Genomics

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Introduction: The Center for Applied and Translational Genomics (CATG) includes the mass spectrometry omics core facility. Its vision is to offer world-class proteomics and metabolomics services at affordable costs, locally within the UAE. The center is equipped with an advanced Orbitrap Exploris 480 high-resolution mass-spectrometer, with the ultra-high-pressure vanquish neo liquid chromatography system

that enables faster and higher resolution chromatography; and the Dionex 3000 Ultimate with UV-detection and automated fraction collection for deep-fractionation of samples. **Results**: In just 1 year of operation the center has already analyzed the molecular signatures of more than 300 samples, with more than 1500 samples expected in the next year. It has produced data from over 10 different sample types including cultured cells and their media, bacteria, plasma and other body fluids, and hard and soft tissues, among many others. These analyses have included top-down analysis of intact proteoforms and bottom-up analysis of peptides. The center runs both targeted and discovery analyses and utilizes both data-dependent acquisition, as well as modern data-independent acquisition. The center routinely measures >6000 proteins from 200 ng of a commercial HeLa cell digest in under 30 min of analysis time, and >600 proteins from only 250 pg – approximately the protein content of a single cell. The current record is ~15,000 total proteins observed across samples from a single experiment, with >8000 proteins and >111,000 peptide precursors observed, per sample. **Conclusion:** The CATG MS-Omics core facility offers world-class proteomics and metabolomics services for a wide range of sample types and data acquisition strategies at affordable costs, locally within the UAE. It has enabled new opportunities to answer pressing clinical research questions. The center's team is internationally trained and qualified, approachable, and open to working with Dubai Health partners to further their proteomic and metabolomic research questions.

Keywords: proteomics, metabolomics, DDA, DIA, core facility

RC146

Multiomics Methods Applied in the Search for Human Disease Biomarkers – Diagnostic and Disease Management

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Background: Even with such a substantial investment in biomedical research, there are still significant unmet medical needs, and the rising area of research biomarker discovery and utilization is a direct answer to this. It is critical to expand our knowledge to better comprehend various mechanisms of human diseases in order to meet these needs. **Methods:** Proteomics and metabolomics-based techniques are

examples of tools that can help us learn more. Within the biomedical context, metabolomics is now seen as an emerging analytical tool that enables us to investigate the contents of a biological matrix at molecular level. Indeed, metabolites are downstream biochemical products in the “omics” cascade, and in many cases, alterations in metabolism can be straightforwardly translated into biological conditions and/or inform of diseases. Large-scale proteomics is an unbiased study of proteins and their interactions within biological systems, causally tied to the underlying biochemical activity and the state of cells or organisms. It is a complement to metabolomics. **Conclusion**: This presentation discusses the potential application of clinical multiomics (proteomics and metabolomics) technologies that have been used to find biomarkers for early detection, prognosis, and therapy of a variety of disorders, including the most common cancer(s). Thus, the collected data can be used to advance diagnosis and treatment by applying multiomics systems biology-based approaches to unravel underlying biological mechanisms of disease and uncover and validate disease markers. Which, in turn, provides an incredible potential to personalize medicine and improve disease treatment, management, and therapy outcomes.

Keywords: biomarker, proteomics, metabolomics, human diseases

RC112

Transorbital Penetrating Nail Injury Reaching the Anterior Cranial Fossa: A Multidisciplinary Surgical Approach

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Background: A 41-year-old male presented to the emergency department with a penetrating injury to his right eye caused by a metal nail. **Methods:** Clinical examination and CT imaging revealed a metallic density nail traversing the medial canthus of the right orbit, crossing the nasal bone, and extending posteriorly through the left orbital apex. The tip of the nail reached the anterior cranial fossa, just superior to the left anterior clinoid process, posing a risk to critical neurovascular structures. **Results:** A multidisciplinary team (MDT) approach was adopted, involving otolaryngology (ENT), ophthalmology, neurosurgery, and infectious disease specialists. After thorough discussion, the consensus was to surgically remove the nail via a functional endoscopic sinus surgery (FESS) approach, led by the ENT team. Intraoperative management included extraction of the nail, repair of the skull base, and management of cerebrospinal fluid (CSF) leakage. **Conclusion:** Postoperative care was coordinated by the multidisciplinary team, with a

focus on infection prevention and preservation of neurological and ophthalmological function. This case highlights the importance of a collaborative approach in managing complex cranio-orbital trauma.

Keywords: orbital trauma, CSF leak, base of skull, FESS

RC108

Narrow Versus Standard Diameter Titanium Zirconium Implants for Supporting Single Crown Restorations

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Background: Studies on the use of narrow-diameter dental implants in the posterior areas are still scarce. The presented randomized controlled trial aimed to assess clinical and radiographic and patient-reported outcomes of using narrow- versus standard-diameter single titanium zirconium (TiZr) implants placed and loaded in posterior sites (premolars and molars) with limited horizontal bone width. **Methods**: Participants requiring the replacement of single missing posterior tooth with dental implant were randomly allocated into two treatment groups: narrow (3.3 mm) or standard (4.1 mm) diameter implant. The changes in marginal bone level (MBL) were assessed at the time of delivery of definitive crown and after 1 year of function. Implant stability was measured at placement, 3 and 12 months. Implant success, pink aesthetic score (PES), periodontal parameters, prosthodontic outcomes, and patient satisfaction were also evaluated. **Results**: Total 20 participants with 20 implant-supported single crowns, completed the 1-year follow up. All the evaluated implants met the success criteria. The narrow-diameter TiZr implants had a higher bone gain of 0.35 ± 1.02 mm after 1 year of loading compared with only 0.04 ± 0.20 mm for standard-diameter TiZr implants, but the difference was not statistically significant (P = 0.38). No statistically significant differences were observed between the two implant groups in terms of PES, periodontal, and prosthodontic outcomes. **Conclusion:** Narrow- and standard-diameter implants were reliable treatment modalities for replacing a single missing posterior tooth with comparable and favorable changes in MBL, implant stability, and esthetic outcomes after 1 year of function. The findings also showed high patient satisfaction in both implant groups.

Keywords: narrow-diameter dental implants, patient-reported outcome measures, randomized controlled trial

RC136

Navigating a Tubo-ovarian Abscess

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Introduction: When pelvic inflammatory disease (PID) is not identified and treated promptly, tubo-ovarian abscess (TOA), a serious side effect, can result in significant morbidity. A 36-year-old Palestinian woman with an extended-spectrum beta-lactamase (ESBL) infection serves as an example of the challenges associated with treating bilateral TOA. **Methods:** The initial presentation of fever and excruciating lower abdominal pain as well as elevated inflammatory markers led initially to the diagnosis of acute pyelonephritis. CT scan was arranged to confirm the diagnosis, but it, instead, indicated PID. Patient was started on the initial round of antibiotics but showed no clinical improvement with increasing liver function test abnormalities. Surgical teams were consulted, and a follow-up CT was done which suggested extensive bilateral TOA; with the patient's understanding and consent, the plan for diagnostic laparoscopy was made. **Results:** A sizable bilateral TOA was discovered during surgery and drained. Following surgery, the patient received antibiotic therapy based on the ESBL sensitivity, gradually improved, and was discharged in stable condition. In a few days the patient presented to the emergency with low-grade fever and abdominal pain, a repeat CT scan was in favor of another pelvic collection, but the patient opted for conservative management with no surgical intervention. **Conclusion:** TOA is a potentially fatal illness that is frequently linked to PID; prompt treatment is essential to avert serious consequences. Antibiotic therapy is complicated by the presence of ESBL-producing organisms, requiring individualized regimens. The clinical improvement resulted in this case from surgical drainage plus the right antibiotics, but the recurring abscess formation emphasizes the importance of close monitoring. Early diagnosis, appropriate antibiotic selection, and surgical intervention are needed for managing TOA. The difficulties associated with ESBL infections emphasize the necessity of individualized treatment plans and ongoing monitoring to guarantee the successful management of complicated pelvic infections.

Keywords: pyosalpinx, tubo-ovarian abscess, peritonitis, pelvic inflammatory disease

RC130

New Design of Bicruciate Retaining Total Knee Replacement

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Introduction: Bicruciate-retaining total knee arthroplasty (BRTKA) represents a promising advancement in knee replacement surgery by preserving both the anterior and posterior cruciate ligaments, mimicking the natural knee anatomy and biomechanics. **Methods:** This abstract highlights a new design for BRTKA that aims to further improve function and stability in patients undergoing total knee replacement. The innovative design incorporates features that optimize ligament tension and alignment, promote a more physiological knee movement, and reduce the risk of instability and implant wear. By preserving both cruciate ligaments, the new BRTKA design seeks to provide better proprioception, improved kinematics, and enhanced stability throughout the range of motion. **Conclusion:** This abstract will discuss the development process, biomechanical principles, and clinical outcomes associated with the new design for BRTKA. By focusing on preserving the native knee ligaments and enhancing joint function, this innovative approach has the potential to revolutionize total knee arthroplasty and improve patient satisfaction and long-term outcomes following surgery.

Keywords: new design, bicruciate retaining, total knee replacement

RC167

A Novel Blood Pressure Monitoring Technique by Smart WATCH: Validation Study (Protocol)

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Introduction: The rise in wearable health devices presents new opportunities for continuous monitoring of cardiovascular health, especially in managing hypertension, a key risk factor for heart disease and stroke. Blood pressure (BP) measurement is fundamental in diagnosing and treating cardiovascular conditions. While traditional upper-arm BP monitors are considered the gold standard, wrist-type BP monitors, like the Watch XXX, offer a more convenient option for self monitoring. However, wrist BP monitors face challenges in accuracy due to their size and sensitivity to arm movement and position. **Methods**: This study aims to validate the accuracy of the Watch XXX wrist BP monitor by comparing its performance to standard mercury sphygmomanometer readings, adhering to the AAMI/ESH/ISO Universal Standard. The study will involve at least 85 participants, including students and staff from Mohammed Bin Rashid University (MBRU) and patients from Umm Suqeim Primary Healthcare Center. Participants will undergo BP measurements using both the Watch XXX and the reference mercury sphygmomanometer, with data analyzed to assess whether the wrist monitor meets the predefined accuracy criteria. Key inclusion criteria include adults over 18 years old with a diverse range of wrist circumferences, while individuals with conditions such as cardiac arrhythmias or secondary hypertension will be excluded. The study will employ a same-arm sequential measurement method with blinded observers to ensure data reliability. **Results:** The primary outcome will focus on the mean BP difference between the Watch XXX and the mercury sphygmomanometer, which must be ≤5 mmHg with a standard deviation ≤8 mmHg, as per international guidelines. **Conclusion:** By addressing the gap in reliable data on wrist BP monitors, this study seeks to enhance BP management practices and contribute to the ongoing discourse surrounding wearable health devices, ultimately improving patient compliance and health outcomes.

Keywords: wearables, digital health, innovation, blood pressure, hypertension

RC60

A Novel Homozygous Founder Mutation in UFSP2 is Associated with a Distinct Form of Skeletal Dysplasia in Emiratis

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Introduction: Spondyloepimetaphyseal dysplasias (SEMDs), predominantly associated with disproportionate short stature, comprise a heterogeneous group of autosomal-dominant, autosomal-recessive, and X-linked recessive skeletal dysplasias caused by pathogenic variants in several genes. **Results:** Here we characterize a distinct form of skeletal dysplasia in 4 individuals from 3 unrelated Emirati families. Through the whole exome sequencing, we identify a novel homozygous missense variant (c.1376A>C; p.Asn459Thr) in the UFM1-specific protease 2 (*UFSP2*) gene segregating with disease in all affected individuals who did not have other genetic causes of disease. The *UFSP2* gene encodes a cysteine protease that cleaves the C-terminal extension of Ubiquitin-fold modifier 1 (UFM1), a ubiquitin-like protein which is crucial for cellular homeostasis and protein stability. Although two heterozygous pathogenic variants affecting the C-terminal catalytic domain of UFSP2 have been previously associated with two entities of skeletal dysplasia, namely Beukes hip dysplasia (BHD) and SEMD type Di Rocco (SEMDDR), the distinct clinical presentation and the biallelic inheritance in our cohort support a novel form of skeletal dysplasia. The four Emirati patients (average age: 4 years; range: 2 – 7 years) had severe disproportionate short stature (-3.5 and -4.9SD), normal head circumference, wide-based gait, bowed legs, abnormal narrow bell-shape rib cage, scoliosis with exaggerated lumbar lordosis. All patients had unremarkable intellectual and cognitive development. Their blood investigations showed a normal bone profile of serum calcium, phosphate, alkaline phosphatase, PTH, and total vitamin D levels. Their radiological studies demonstrated metaphyseal chondrodysplasia changes mainly at the distal ends of long bones. **Conclusion:** In summary, we report a novel form of skeletal dysplasia caused by a biallelic Emirati founder mutation in the *UFSP2* gene. This work underscores the importance of UFM1 signaling in skeletal development, providing new insights into the molecular mechanisms underlying skeletal dysplasia and potential targets for therapeutic intervention.

Keywords: UFSP2, skeletal dysplasia, homozygous founder mutation

RC03

Opioid-free Anesthesia Management in a Patient with Fentanyl Allergy Undergoing Laparoscopic Appendectomy: A Case Report

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Background: Laparoscopic appendectomy is a routine procedure for acute appendicitis, traditionally managed with opioid-based general anesthesia. However, opioid allergies present significant challenges in anesthesia management. **Case Report:** This case report discusses the successful application of opioid-free anesthesia (OFA) in a 19-year-old female patient with a known fentanyl allergy. The patient developed

an allergic reaction after receiving fentanyl in the emergency room. Consequently, an OFA approach was adopted for her laparoscopic appendectomy. The anesthesia regimen included Dexmedetomidine, Lidocaine, Propofol, and Rocuronium for induction, with sevoflurane for maintenance and multimodal analgesia using Perfalgan and Dynastat. The patient's intraoperative hemodynamics remained stable, and she was smoothly extubated postsurgery. Postoperatively, she experienced no pain, nausea, or vomiting and was discharged from the PACU with stable vital signs. This case underscores the feasibility and effectiveness of OFA in managing patients with opioid allergies, ensuring safe and effective perioperative outcomes. Surgical intervention and anesthetic management: The patient underwent a laparoscopic appendectomy. OFA approach was adopted. For induction, dexmedetomidine bolus dose 1 µg/Ideal BW was administered per 10 min intravenously, along with 80 mg of Lidocaine IV (1.5 mg/kg), 120 mg of Propofol IV, and 50 mg of Rocuronium IV. Intubation was then performed. Anesthesia was maintained with sevoflurane 1 MAC, and dexmedetomidine maintenance dose 0.2-0.5 µg /ideal BW/hour IV infusion, and multimodal analgesia was provided prior to the surgical incision, using Ketamine (0.25 mg/kg) IV, Paracetamol (15 mg/kg) IV, and Parecoxib 40 mg IV. The patient's hemodynamics remained very stable during general anesthesia, and she was smoothly extubated postsurgery after reversal with Sugammadex 200 mg IV and TOF monitor. In the Post-Anesthesia Care Unit (PACU), the patient reported no pain, nausea, or vomiting.

Keywords: allergic reaction management, Dexmedetomidine, multimodal analgesia, Nonopioid anesthesia, perioperative management

RC185

Papillon-Lefevre Syndrome: A Case Report of 2 Affected Siblings

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Background: Papillon-Lefevre syndrome (PLS) is a rare genodermatosis inherited in an autosomal recessive manner. Caused by mutations in cathepsin C (*CTSC*) gene. Characterized by palmoplantar keratoderma (PPK), periodontopathy, pyogenic infections, and intracranial calcifications. **Case Presentation:** Here we describe a case of 7-year-old male brought by his parent to our clinic with the complaint of dry scaly plaques on palms and soles that was first noted when he was 1 month old. On examination, the patient was noted to have well-demarcated, psoriasiform, erythematous keratotic plaques on his

palms, soles, elbow, and knees bilaterally. He also has an infected boil on his right arm. The patient also was routinely followed by periodontologists as he had severe periodontitis, multiple dental caries, and premature loss of deciduous teeth. Radiographic examination of the skull revealed intracranial calcifications. The patient's developmental history is remarkable for learning difficulty and poor attention. He has a positive family history where his 5-years-old younger brother also has palmoplantar keratoderma and similar dental abnormalities. They are children of first cousins' consanguineous parents. His initial presentation was suggestive of plaque psoriasis; however, he was resistant to topical corticosteroids and keratolytics such as urea and salicylic acid. The patient was then treated with methotrexate 10 mg per week for 3 months which led to transient improvement; however, his condition relapsed shortly after completion of therapy. Subsequently, he was treated with oral acitretin 10 mg daily. This led to complete clearance of hyperkeratosis after 5 months of acitretin therapy and no adverse effects were noted. The patient and his brother were referred to a pediatric genetic clinic for further investigations. The diagnosis of Papillon-Lefevre syndrome was confirmed in both siblings by genetic testing which detected the homozygous pathologic deletion of exons 3 to 7 in the *CTSC* gene.

Keywords: Papillon-Lefevre syndrome, Palmar-plantar hyperkeratosis, periodontitis, cathepsin C, genodermatosis, keratosis palmoplantar-periodontopathy, premature tooth loss

RC39

Parametric Simulation of Study for Green Blood Donation Bus

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Background: It has been shown that green bus retrofits are more effective in old, low-efficiency power supply buses. This study describes the possibility of retrofitting a high-efficiency solar power supply bus with a green system to feed all electrical devices and air conditioners inside the blood donation bus in-service time, optimizing its characteristics utilizing parametric simulation. The input variables of the green supply bus system were solar panel power. The output variables by which the different green power supply bus systems are compared are annual energy demand for all medical devices and air-conditioning inside the bus. **Conclusion:** The study concluded that the average supply of energy consumption when using a green supply bus is 100% for all medical devices and cooling, optimizing parameters can get verification for the system.

Keywords: solar panel, power efficiency, backup power system

RC220

Patient's Flow During Day-case GI Endoscopy List at Al Jalila Children's Hospital

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Background: Inflammatory bowel disease (IBD) requires effective endoscopic procedures like esophagogastroduodenoscopy (EGD) and colonoscopy for diagnosis and management. Efficient scheduling and execution are crucial for patient comfort and operational productivity. This audit assessed patient flow and identified delays in the day-case GI endoscopy list at Al-Jalila Children's Hospital from June to August 2024. **Methods:** Data for 35 patients undergoing endoscopic procedures were analyzed, focusing on time stamps from day-care room arrival to the operating room (OR) and recovery area. Metrics evaluated included time between arrival at the holding bay and OR, time from procedure end to OR exit, and time between procedures. Results were compared with 2023 data to identify trends and areas for improvement. **Results:** The average time between arrival at the holding bay and OR decreased to 12 min in 2024 from 13 min in 2023. However, the time from procedure end to OR exit increased to 18 min, and the time between procedures rose significantly to 43 min. Total dead time per procedure averaged 73 min, up from 48 min in 2023. Notable changes included a decrease in average time for EGD with PEG insertion but a slight increase in EGD with biopsy duration, while colonoscopy times remained stable. The increase in dead time, especially between procedures and within the OR, highlights the inefficiencies. Delays were primarily due to fellows' learning curves, intubation issues, and incomplete bowel prep. Optimizing scheduling, enhancing pre-procedure preparation, and improving staff training could address these delays. **Conclusion:** Despite improvements in some areas, significant delays persist. Implementing targeted interventions, such as better scheduling and staff training are essential to reduce dead time and improve overall efficiency. Continuous monitoring and process refinement are recommended for sustained enhancement.

Keywords: endoscopy efficiency, procedure dead time, inflammatory bowel disease, operational delays, patient flow optimization

RC262

Pediatric Early Warning Scoring Escalation Protocol: Experience from Tertiary Center in UAE

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Introduction: Pediatric early warning scoring (PEWS) system has been implemented to facilitate early recognition and response to clinical deterioration, to reduce emergency PICU admissions, and to reduce patient mortality and morbidity. This is achieved by regular documentation of vital signs (heart rate, respiratory rate, blood pressure, peripheral oxygen saturation (SpO_2), and temperature) and clinical observation (level of consciousness, capillary return time, and oxygen therapy). This provides a score and guides a systemic approach that simplifies communication between healthcare providers regarding sick patients requiring attention. In addition, streamlining the process allows early intervention to be carried out, avoiding adverse health outcomes. **Methods:** We reviewed the medical records of 10 random patients with PEWS of 3 or higher from each unit at AJCH (excluding ED, ICU, and oncology) between November 2023 and April 2024 and collected data related to PEWS escalation and response. **Results:** A total of 420 patient records were reviewed. Initial and subsequent PEWS documentation are consistently above the target of 90%. Nursing observation frequency and escalation have improved from low 60s to mid-70s; however, there is room for improvement. The main concern now is physician's initial review and follow-up, which has been <50% during all months of auditing. Some units had lower compliance rates, reasons were discussed during the audit period and addressed accordingly. **Conclusion:** The compliance with PEWS escalation protocol at our institution was not at the desired level. The reasons behind this were explored and an action plan (covering areas of raising awareness, standardization of the process, optimizing the system, etc.) was implemented, as a result. We will re-audit soon to measure the effectiveness of the plan.

Keywords: warning, escalation, protocol, PEWS

RC47

Pituitary Apoplexy in an Adolescent: A Case Report

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Introduction: Pituitary apoplexy is an endocrine emergency that occurs due to hemorrhage or infarction of the pituitary gland predominantly in pituitary adenomas where the mass outgrows its blood. We present a case of a 15-year-old female who was unexpectedly diagnosed as a case of pituitary apoplexy. **Case Presentation**: The patient clinically presented with headache, vomiting, fever, visual disturbances, ophthalmoplegia, dizziness, and abdominal pain. Her history further reveals newly irregular menstruation in the previous 2 months. Clinical examination, however, was insignificant for any neurological or visual field deficits. In this age group, typical culprits include an infectious agent causing meningitis, a space-occupying lesion, a vascular event such as ruptured arteriovenous malformation, or trauma. Lab investigations revealed isolated low morning cortisol and ACTH serum levels. A lumbar puncture and CT scan were done to rule out the differentials. Both were reported as normal. An MRI was ordered as a further step which showed a mild increase in the size of the pituitary gland with heterogeneous enhancement and curvilinear hyperintensity in the floor of the Sella suggesting hemorrhage within the gland. According to the imaging results and lab values, the patient was diagnosed with pituitary apoplexy with secondary adrenal insufficiency. Therefore, the patient was started on substitutive steroids, pain-control medications, and metoclopramide for her vomiting. **Conclusion:** This case highlights that a diagnosis of pituitary apoplexy does not necessitate the presence of an underlying mass in the pituitary and could occur in adolescence.

Keywords: pituitary apoplexy, pituitary adenoma, hypopituitarism, adrenal insufficiency, headache

RC57

Polycythemia and Strokes: A Common Masquerade: A Case Series

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Background: Polycythemia has been recognized as a potential contributing factor to acute neurological deficits, including strokes. This case series presents three individuals with acute neurological symptoms who were admitted to the acute medical unit and subsequently diagnosed with polycythemia. **Case Report:** 1. Patient A: A 64-year-old male presented with left-sided weakness, slurred speech, and facial drooping. His history included long-standing hypertension, significant smoking, and alcohol consumption. Imaging revealed a small acute infarct in the right basal ganglia, with polycythemia. The patient had a complete resolution of symptoms following venesection. 2. Patient B: A 28-year-old heavy smoker with no prior medical history was admitted for right-sided weakness and headache. Investigations revealed a hemorrhagic focus in the pons and multiple chronic lacunar infarcts. Blood pressure management and venesection for polycythemia were initiated, given his high hematocrit levels, and he was monitored for potential secondary prevention strategies. 3. Patient C: A previously healthy 51-year-old male presented with sudden left-side weakness and slurred speech. He was found to have a right caudate nucleus lacunar infarct and evidence of short segment stenosis in the right middle cerebral artery. His history revealed heavy smoking, and hematological parameters were suggestive of secondary polycythemia. **Conclusion:** All three patients experienced complete functional recovery following targeted management of polycythemia and stroke-related interventions. This case series underscores the critical need for awareness of polycythemia as a potential underlying cause of acute neurological events. Multidisciplinary evaluation and proactive management can significantly impact patient outcomes in such complex scenarios. Future studies should focus on enhancing diagnostic protocols to identify polycythemia in similar clinical settings.

Keywords: polycythemia, raised hematocrit, neurological deficits, strokes

RC268

Preoperative Gastric POCUS in Patients with Questionable Fasting Status

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Background: The assessment of preoperative gastric point-of-care ultrasound (POCUS) in patients with questionable fasting status is crucial for perioperative care, particularly for individuals with comorbidities, altered sensorium, or communication barriers. Fasting guidelines are well-established for healthy patients but lack clear directives for those with delayed gastric emptying. Our initiative aims to address this gap by utilizing gastric POCUS to assess stomach volume and content in this vulnerable population, ideally conducted in the preop holding bay area shortly before surgery. Anesthesiologists will perform

and interpret the ultrasound examinations, enhancing patient safety and refining perioperative care practices tailored to patients with comorbidities, such as diabetes or chronic kidney disease. Through this initiative, we aim to improve surgical outcomes and contribute to personalized perioperative care strategies. **Methods**: After obtaining informed consent, gastric POCUS will be conducted in patients undergoing elective and emergency surgeries. The assessment will be performed in the supine head-up or right lateral decubitus positions, with findings correlated to preanesthetic questionnaires, including meal intake and trauma history. Patients with significant gastric content (grade 2 or clear fluid >1.5 mL/kg) will undergo nasogastric tube (NGT) insertion and drainage. Decisions regarding surgery delay, airway management, and induction methods will be guided through POCUS findings. **Results:** Of 100 patients, 7% showed significant gastric content despite adherence to fasting guidelines, highlighting the variability in gastric emptying. Repeat POCUS in three patients revealed empty stomachs after a few hours. Airway management for grade 2 patients involved rapid sequence induction with endotracheal intubation. No perioperative aspiration was recorded. **Conclusion:** Implementing preoperative gastric ultrasound reduced aspiration risk and improved anesthesia management. We recommend its routine use in patients with comorbidities or questionable fasting status, ensuring individualized care and safer perioperative outcomes.

Keywords: fasting, gastric POCUS, aspiration

RC175

Prevalence and Burden of Primary Headaches in Dubai, UAE

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Background: Primary headache disorder (HD) is a widespread public health problem characterized by pain around regions of the head and face. Understanding the distribution of patients with HD to optimize approaches toward its diagnosis and treatment is crucial. Available data on the prevalence of primary HDs in Dubai, UAE, are limited. The objective of this study was to estimate the prevalence of primary HDs in Dubai and evaluate their relationship to patient demographics. **Methods**: A cross-sectional study based on a telephonic interview survey was conducted among the Emirati population in the age group of 18–65 years for 6 months, which started in November 2022. The headache attributed restriction, disability, social handicap, and impaired participation (HARDSHIP) questionnaire was used for collecting data using a systematic random sampling method. Disability caused by HDs was determined using the migraine disability assessment (MIDAS) level. **Results**: The study included 2000 patients (mean age: 39.34±10.96 years; female: 52.7%) who consented to participate. Primary HD was prevalent in 39.1% (n=781) of the

participants, especially in the age group of 31–40 years (35.1%). Association analyses revealed significant associations between age and type of consultation with MIDAS level (p=0.025 and p<0.001, respectively). The type of primary HD was significantly associated with age (p=0.022), marital status (p=0.042), type of headache management (p<0.001), and medication used (p<0.001). **Conclusion**: Primary HD was prevalent in 39.1% of the study population from Dubai with the highest prevalence in the age group of 31–40 years. Among risk factors, age and marital status were significantly associated with the type of primary HD. Age and type of consultation were significantly associated with disability caused by primary HDs.

Keywords: prevalence, Dubai, primary headache

RC207

Prevalence of Nonalcoholic Fatty Liver Disease and its Association with Diabetes Mellitus Type 2 in the UAE

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Introduction: Nonalcoholic fatty liver disease is one of the most common causes of chronic liver diseases and liver-related mortality and morbidity. While the prevalence of both conditions has increased significantly in recent years, there are limited studies on the association between the two conditions. This study aims to assess the prevalence of NAFLD in T2DM patients in the UAE and thus provides a better understanding of the bidirectional relationship between the two diseases and their associated risk factors and informing guidelines for early diagnosis and intervention to improve patient outcomes. **Methods**: A randomized cross-sectional retrospective study analyzed medical records of 385 patients who consulted at Dubai Diabetic Care Center between January 2023 and December 2023. NAFLD was assessed through clinical and laboratorial assessments and its association with T2DM was analyzed using statistic models via SPSS. **Results**: Most of the patients were female (53.4%), while 46.6% were males. 93% of patients were UAE nationals while 7% were non-UAE nationalities. In regard to NAFLD risk, 69.4% of patients were classified as low risk, 25.7% as intermediate risk, and 2.1% as high risk. Screening of fatty liver was indicated in 78% of patients while 56.3% were suspected of having NAFLD. No statistical significance between gender and risk category, screening indication, or suspect of NAFLD was observed. However, a statistically significant association was found between nationality and risk category (p=0.029) as well as BMI (p=0.001) and risk category, with higher BMI and elevated HbA1C levels being associated with greater risk for NAFLD. **Conclusion**: The strong prevalence of NAFLD found in T2DM patients further highlights the

need for targeted public health intervention and clinical guidelines in the UAE to address the dual health burden of both conditions. Early screening and management strategies can mitigate the progression of liver diseases and reduce diabetes-related complications in this high-risk patient population.

Keywords: nonalcoholic fatty liver disease, prevalence, type-2 diabetes mellitus, UAE, liver diseases, metabolic syndrome, epidemiology, risk factors

RC80

Prevalence, Indications, and Outcomes of Total Laparoscopic Hysterectomy in Latifa Hospital, Dubai, UAE, from 2021 to 2023

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Introduction: Total laparoscopic hysterectomy (TLH) is increasingly favored for the management of various gynecological conditions due to its minimally invasive nature. This study aimed to evaluate the prevalence, indications, and outcomes of TLH at Latifa Hospital from January 2021 to December 2023. **Methods**: This retrospective descriptive cohort study analyzed data from 533 patients who underwent TLH at Latifa Hospital during the study period. Patient demographics, indications for surgery, and intra- and postoperative outcomes were reviewed. The relationships between surgical indications, body mass index (BMI), age, and the risk of complications were assessed using the Chi-square test and Mann-Whitney U-test. **Results**: TLH represented 24.60% of all laparoscopic surgeries performed during the study period. The mean age of the patients was 49.4 years, and the average BMI was 30.38 kg/m^2. The most frequent indications for TLH were adenomyosis and abnormal uterine bleeding (40.7%), followed by uterine fibroids (38.5%). Intraoperative complications occurred in 3% of cases, with minor issues such as vascular injury (0.2%) and bladder injury (0.4%). Postoperative complications were observed in 22% of patients, with urinary tract infections being the most common (11.4%). Statistical analysis revealed no significant associations between BMI, age, surgical indications, and complication rates. **Conclusion**: This retrospective cohort study confirms that TLH is a safe and effective procedure for various gynecological conditions, demonstrating low complication rates and favorable outcomes across a diverse patient population. The findings support the ongoing use of TLH as the preferred surgical approach in suitable candidates at Latifa Hospital.

Keywords: prevalence, indications, outcomes, TLH, Latifa Hospital

RC252

Primary CNS Vasculitis: A Rare Entity

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Background: Primary CNS vasculitis is a rare autoimmune disorder of unknown etiology that is restricted to brain and spinal cord. Neurological manifestations include headaches, altered cognition, and hemiparesis. Serological markers of inflammation are usually normal, and connective tissue workup is negative. 80-90% of patients have abnormal cerebrospinal fluid analysis. The only definitive test is brain biopsy. Cerebral angiography is often used to establish a diagnosis. Response to treatment and outcome is dependent on the size of vessel effected. Treatment with corticosteroids and cytotoxic drugs can often prevent serious outcomes. **Case Presentation:** We report a case of a 38-year-old Filipino lady, who presented with a history of fall and sudden onset right side weakness. MRI brain showed multiple ischemic strokes in various arterial territories. ECG, Holter monitoring revealed no arrhythmia. Transthoracic and trans esophageal echo were normal. Thrombophilia screening and detailed connective tissue profile was negative. CT cerebral angiogram showed multi-focal intracranial arterial narrowing and beading of medium size and small blood vessels. Diagnosis of primary CNS vasculitis was made, lumbar puncture was done to rule out. She was pulsed with IV methylprednisolone, followed by rituximab. She was discharged home on tapering doses of oral prednisolone. Two weeks after discharge, our patient was re-admitted with new-onset weakness and GCS 3/15. She was intubated and mechanically ventilated. CT and MRI brain and spinal cord showed an increasing number of new ischemic strokes. She was again pulsed with IV steroids and rituximab. Her condition continued to deteriorate. Brain stem death was confirmed and as per her will and family wishes, the patient was shifted to another facility for organ donation. **Conclusion**: Strokes in multiple territories with all negative workup should alert physicians to the diagnosis of primary CNS vasculitis.

Keywords: CNS vasculitis, methylprednisolone, rituximab

RC142

Profiling of Circulating MicroRNA in Different Subtypes of Type 2 Diabetes in Emirati Population

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Introduction: Type 2 diabetes (T2D) is a heterogeneous disease influenced by genetic and environmental factors. It is proposed that it has several phenotype/genotype subtypes or clusters with distinct profiles of expressed genes. To further explore the genome/environmental interaction associated with each cluster, we examined the expression of circulating noncoding microRNAs across five different clusters of the disease and identified distinct microRNA signatures associated with each cluster. **Methods**: Sequencing of circulating small RNAs was performed in the serum of 50 subjects: nine from each of the five T2D clusters and 7 nondiabetes healthy controls. **Results**: In total, 430 circulating miRNAs were identified and 13 novel unreported previously. Of the total, 108 were differentially expressed; 71 were upregulated and 37 were downregulated, with many specifically expressed in individual clusters. Pathway analysis showed the involvement of insulin resistance pathway in the severe-insulin resistant cluster, while obesity and inflammation pathways were involved in the mild-obesity related diabetes cluster. **Conclusion**: miRNA could be used as markers for the pathophysiology of distinct T2D clusters, and therefore, help in individualized management of patients and improve their quality of life.

Keywords: type 2 diabetes, subtypes, circulating miRNA

RC238

Prognostic Determinants of Successful Mechanical Revascularization After Stroke

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Background: Stroke is a leading international cause of morbidity and mortality with well-established and preventable risk factors. Patients with successful mechanical revascularization experience notable functional improvement post stroke. We aim to investigate the prognostic determinants of successful mechanical thrombectomy, defined as an outcome of TICI 2B and higher. **Methods:** This is a cross-sectional study conducted in the largest stroke center in Dubai, UAE. We included adult patients presenting with acute stroke who underwent mechanical thrombectomy at our hospital. Risk factors and procedure outcomes were recorded before and after the intervention. P-values < 0.05 were considered significant. **Results:** A total of 153 patients were included in the study. The mean age was 52 years, with a standard deviation of 15 years. 82% of all admitted patients were male. The most involved artery in our sample was the M1 segment of the middle cerebral artery. 61% of all participants had an ASPECT score of 7 or higher on admission brain CT. Of all patients, 78% achieved TICI 2B or higher postmechanical thrombectomy. The mean duration of hospitalization was 26 days. **Conclusion:** Successful mechanical thrombectomy is associated with a rapid return to functionality after stroke. Therefore, factors associated with successful revascularization are exceedingly crucial.

Keywords: stroke, morbidity, determinants, revascularization, thrombectomy

RC205

Proteomic and Metabolomic Profiling of Invasive Methicillin-resistant *Staphylococcus aureus*: Uncovering Key Biomarkers and Pathogenic Pathways

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Introduction: Understanding the behavioral differences between invasive and noninvasive methicillin-resistant *Staphylococcus aureus* (MRSA) is key to unraveling their infection mechanisms and identifying biomarkers with potential translational value. This study aimed to compare the proteomic and metabolomic profiles of MRSA isolates from various clinical presentations to uncover distinct molecular signatures. **Methods**: Invasive MRSA isolates obtained from blood cultures (n=23), noninvasive MRSA isolates from superficial skin infections (n=49), and nasal colonizers (n=24) from screening anterior nares swabs were analyzed. Using the dual functionality methanol extraction method, proteins and metabolites were extracted from bacterial colonies grown on blood agar. Proteins were analyzed using Orbitrap Exploris 480, and metabolites were characterized using a TimsTOF mass spectrometer with an Apollo II electrospray ionization source. Data were acquired using DIA and the peptides were assigned to their respective proteins using DIA-NN, while metabolomic data analysis was conducted using MetaboScape® 4.0. **Results**: A total of 2000 proteins and 150 metabolites were identified across all the MRSA isolates. No significant differences in protein or metabolite intensities were observed between noninvasive isolates and nasal colonizers. However, compared to noninvasive isolates and nasal colonizers, the invasive MRSA isolates consistently exhibited higher intensities of two metabolites (Sphinganine and Phosphoserine) and one protein (*Staphylococcal* secretory antigen ssaA2). Conversely, three metabolites (cytidine, benzoic acid, and guanosine) and two proteins (small ribosomal subunit protein bS20 and bifunctional autolysin) were found at significantly lower intensities in invasive MRSA isolates. Over-representation analysis of enriched KEGG pathways revealed significant enrichment of the sphingolipid metabolism and ribosomal pathways ($p<0.05$). **Conclusion**: The enrichment of pathways linked to invasion emphasizes their role in the pathogenicity of invasive MRSA. These findings highlight critical biological differences between invasive and noninvasive MRSA, offering valuable insights into potential diagnostic and therapeutic biomarkers.

Keywords: methicillin-resistant *Staphylococcus aureus*, proteomics, metabolomic, invasive, noninvasive

RC158

A Quasi-experimental Study to Assess the Effectiveness of Simulation Workshop on Emergency Case Management for Nurses Working in Selected Govt Hospitals, Dubai, UAE

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Background: The effectiveness of simulation workshops in enhancing nursing knowledge and skills has gained attention in recent years. This study evaluates the impact of a simulation workshop on knowledge levels among nursing staff across various departments, considering the influence of demographic factors such as age, experience, education, and previous training. Simulation-based training has emerged as a promising educational tool to bridge this gap, offering a safe and controlled environment for nurses to develop and refine their skills. The aim of the study was to assess the effectiveness of a simulation workshop on improving emergency case management skills among nurses in LWCH, Dubai, UAE. **Methods**: A Quasi-experimental design was used, involving 147 nurses from LWCH, Dubai, UAE. Participants underwent a simulation workshop focused on managing emergency cases. Data were collected by using a standardized online knowledge assessment questionnaire. **Results**: Across all departments, the simulation workshop led to substantial improvements in knowledge levels from pretest to post-test. The Delivery Suite (DS) saw a dramatic shift from 100% poor knowledge in the pretest to a considerable percentage achieving good to excellent knowledge in the post-test. The Emergency Department (ED) and Intensive Care Unit (ICU) also exhibited significant improvements, with staff moving from poor to very good and excellent knowledge. The paired t-test revealed a highly significant difference between pretest and post-test knowledge scores ($p = 0.0001$), indicating a statistically significant improvement in knowledge following the simulation workshop. The null hypothesis was rejected confirming the positive impact of the simulation workshop. Furthermore, demographic variables such as age, years of experience, educational background, attendance at mock drills, and type of life support training were found to significantly influence knowledge scores postsimulation. **Conclusion**: The simulation workshop significantly enhanced the knowledge levels of nursing staff across different departments. The findings suggest that simulation-based education, combined with consideration of demographic factors, is an effective approach to improving the knowledge and skills of nursing professionals.

Keywords: simulation workshop, emergency case management, nursing education, clinical skills

RC141

Rashid Hospital Outreach Program 2022: Analysis of Cardiovascular Risk Factors Screening in Dubai

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Background: Acute Coronary Syndrome (ACS) spurs hospital admissions, prompting innovative solutions like outreach screening. The World Health Organization revealed that 85% of cardiovascular disease

(CVD) burden in 1998 was in low- and middle-income countries, with projections indicating alarming increases by 2020, especially in the Middle East. This study aims to shed light on complex cardiovascular landscape through community-based screening, offering insights for timely interventions. **Methods**: A retrospective study examined 952 individuals in diverse settings. Cardiovascular risk factors like diabetes, hypertension, and dyslipidemia were studied using a demographic questionnaire, rigorous statistical analysis, and advanced SPSS software. This approach revealed patterns in risk factor prevalence, guiding interventions and enhancing understanding of cardiovascular health trends. **Results**: Of 951 participants, 81% were males, 22% smokers, and 86% exhibited diabetes. Hypertension and dyslipidemia were seen in 84% and 22%, respectively. Higher education and regular exercise in 62% and 47% of participants, respectively. The family history of heart disease affected 77%, with 6% having heart disease. The BMI assessment revealed 354 overweight, 180 obese, and 27 underweight individuals. Significant high blood pressure values were observed in 54 participants. Among known diabetics (n=101), 28 lacked HBA1C checks, and 37 had uncontrolled diabetes (HBA1C > 7). For previously undiagnosed cases (n=784), 26 were identified with diabetes, and 300 lacked HBA1C data. Known dyslipidemia cases (n=180) had high LDL levels (>116 mg/dL). Previously unmonitored cases (n=764) depicted elevated LDL levels, with 107 lacking data. **Conclusion**: This study underscores community-based screening's pivotal role in identifying and addressing cardiovascular health risks. Targeted interventions are imperative to mitigate rising CVD burdens in the UAE and beyond. Collaborative efforts are crucial for optimal cardiovascular health outcomes.

Keywords: cardiovascular risk, acute coronary syndrome, screening, outreach program

RC251

A Rare Etiology of Small Intestinal Obstruction: A Case Report

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Introduction: Enteroliths are considered a rare cause of small intestinal obstruction. Primary enterolith is formed in the small intestine in conditions like Crohn's disease, small bowel diverticula, tuberculosis or postoperative strictures, and blind loops. Secondary enterolith occurs when they enter the bowel from an external source such as the gallbladder. Here, we present a case of small bowel obstruction due to enteroliths. **Case Report**: We report a 43-year-old lady presented to the emergency department with

small intestinal obstruction confirmed by an abdominal CT scan which revealed two foreign bodies. The patient presented with abdominal pain and obstipation for 4 days with multiple episodes of vomiting for one day. The patient had a cholecystectomy performed 15 years ago. She was treated with local resection with mechanical anastomosis through exploratory laparotomy. Small intestinal strictures were noted intraoperatively. The patient recovered well with an unremarkable postoperative course. Chemical analysis of the stones revealed the presence of calcium oxalate. **Conclusion**: This was an interesting case as it presents a rare cause of small bowel obstruction. Alterations in intestinal motility as in small intestinal strictures play a significant role in promoting calcium stone formation, explaining the cause of calcium stone formation in our patient. Although enterolith diagnosis is challenging, an abdominal CT scan is the preferred imaging for the diagnosis. Enterolithiasis should be on the list of differential diagnoses for patients presenting with small intestinal obstruction and an abdominal CT scan is the imaging of choice.

Keywords: enterolithiasis, intestinal obstruction, intestinal stones, stricture

RC225

Rare Features of Neuro-Behçet Disease: A Case Report

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Introduction: Behçet disease (BD) is a rare chronic multisystem inflammatory vascular disease that is of unknown etiology. The CNS is involved in 20-25% of cases which is termed Neuro-Behçet disease (NBD). NBD can be divided into two subtypes: parenchymal and nonparenchymal. This case illustrates the vascular complications of neuro-Behçet disease. **Case Report**: A 32-year-old South Asian male presented with a sudden onset of severe headache and right hemiplegia. Past medical history: Behçet disease was diagnosed 2 years prior based on biopsy-proven oral and skin ulcers and bilateral lower limb ischemia. Initial CT brain showed subarachnoid hemorrhage, followed by a CT brain angiogram and digital subtraction angiogram that confirmed aneurysms at the right internal carotid and basilar arteries. A 3-month follow-up angiogram revealed an increase in the size of the basilar tip aneurysm. Therefore, coiling of the aneurysm via web device was done, which resulted in a good outcome. The international study group criteria for diagnosing BD includes recurrent oral ulcers plus two of the following: recurrent genital ulcers, eye lesions (e.g., uveitis, retinal vasculitis), skin lesions (e.g., papulo-pustular lesions), and positive pathergy test. A diagnosis of NBD is based on clinical presentation and neuroimaging. The

neurologic manifestations of BD are categorized as parenchymal and, less commonly, nonparenchymal. The parenchymal type includes meningoencephalitis and lesions in the brainstem, hemispheres, and spinal cord. Whereas the nonparenchymal type (vascular NBD) includes venous sinus thrombosis, arterial occlusion, and/or aneurysms. Aneurysms involving the intra- and extracranial arteries are rare in NBD with only a few in reported literature. Uniquely, this case demonstrates the nonparenchymal manifestations of NBD, which included aneurysms, arterial occlusions, and vasculitis. The incidence of aneurysm formation in BD is rare, yet they have the tendency of being multiple, peripheral, and fusiform. Thus, any patient with multiple aneurysms should raise the possibility of Behçet's disease. **Conclusion**: The diagnosis of Neuro-Behçet's disease is challenging and relies on the exclusion of other neurological conditions via a multidisciplinary approach. Imaging plays a role in determining the parenchymal and nonparenchymal types of NBD. This case proves that NBD is an important differential in the setting of multiple intracranial aneurysms and arterial occlusions.

Keywords: Behçet disease, radiology, case report

RC303

A Rare Phenomenon in a Case of Postpartum Abdominal Distension

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Introduction: We present the case of a patient who developed abdominal distension, nausea, constipation, and fever after an emergency cesarean section, and the events that followed. Imaging revealed a cecal bascule, the rarest type of intestinal volvulus. Although this partially explained her symptoms, she did not clinically improve and was ultimately treated for a surgical site infection on diagnostic laparoscopy, her diagnosis masked by her unusual clinical presentation and rare finding on imaging. **Methods**: The patient was clinically evaluated during admission, through labor and postpartum, and followed-up on diagnostic laparoscopy and postoperatively, with regular clinic visits. **Results**: After undergoing an emergency cesarean section, she developed fever, nausea, sudden bowel distension, absent bowel sounds, and an inability to pass gas on postoperative day 2. Despite conservative management with laxatives and limiting oral intake, she did not improve. Labs revealed a high white blood cell count, raised septic markers, and a hemoglobin drop of almost 3 gr. Electrolytes were mildly deranged. Cultures were negative. Differentials included paralytic ileus and Ogilvie syndrome. A computed tomography scan was

unremarkable for abdominal or pelvic collection or perforation. A cecal bascule was noted, partially explaining the presentation. General surgeons advised conservative management, and she was placed on intravenous antibiotics. She further spiked fever, and her clinical condition did not improve, thus underwent a diagnostic laparoscopy which revealed a pelvic collection; drainage and enterolysis were performed with evacuation of the uterus. Fluid cultures were positive for ESBL *E. coli* and *Enterococcus fecum*. She had an uneventful postoperative course and was discharged stable. She follows-up regularly with chronic gastrointestinal symptoms, possibly attributed to her incidental diagnosis. **Conclusion**: Rare pathologies can be found in postpartum patients with abdominal distension and fever, which can mask the final diagnosis but provide answers to other questions in the patient's history.

Keywords: abdominal distension, Cecal bascule, postpartum

RC92

Resurrection of An Ancient Scourge - Nodules in HIV

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Background: Since the discovery of the human immunodeficiency virus (HIV) in the 1980s, several opportunistic infections were recognized to be harbingers of worsening disease in acquired immunodeficiency syndrome patients. Though the advent of retroviral therapy has reduced the burden of the disease worldwide, HIV patients are still stigmatized by opportunistic infections of the skin. **Methods:** A 34-year-old male with history of HIV on antiretroviral therapy presented to the Dermatology department with 2-month history of itchy rash all over the body including the genitalia. He tried anti-histamines and fusidic acid cream and saw no improvement. On examination, he had numerous pink papules and nodules distributed all over the body including the lips, palms, soles, and genitalia. **Results:** RPR >1:64, HIV viral load <40. Skin biopsy: Psoriasiform hyperplasia of epidermis with a superficial band-like and perivascular infiltrate in the dermis suspicious of syphilis. The differential diagnosis of giant molluscum contagiosum, secondary syphilis, HIV eosinophilic folliculitis, and opportunistic fungal infections were done. **Conclusion:** In conclusion, this case underscores the complexity of diagnosing and managing malignant secondary syphilis in HIV-positive patients. The severe manifestations observed in this immunocompromised individual emphasize the necessity for heightened clinical vigilance. Effective treatment and rigorous monitoring are crucial to address both syphilis and HIV comprehensively, ensuring optimal patient outcomes and preventing further complications.

Keywords: secondary syphilis, HIV, immunodeficiency

RC91

A Retrospective Study Investigating Semen Parameter Profiles Among Male Patients Attending a Fertility Center in the UAE: Insights from a Nationality Perspective

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Background: The current study assessed the epidemiological trends of semen phenotypes and their association with geographic regions among men seeking fertility treatment in the UAE. **Methods:** This retrospective study assessed the anthropometric information including age, body mass index (BMI), and nationality, along with semen parameters of men who visited a Fertility Center in Abu Dhabi, UAE between January 2011 and July 2022. To understand the epidemiological trend of semen parameters amongst UAE nationals, propensity score analysis and logistic regression were performed. Thus, the exposure variable of interest is ethnicity, categorized into UAE nationals (Emirati) and Others (minus UAE; Global). Statistical analysis was performed using SPSS, R package, and STATA. **Results:** In this study, 32,664 samples were collected from 19,482 patients from 113 countries worldwide over a period of 11 years. Most participants made multiple visits, with around 40% attending at least once. Following covariates adjustment, logistic regression indicated a nonsignificant increase (4%) in the prevalence of asthenozoospermia among the UAE population compared to the Global. Further modeling adjusted for propensity score and Emirati status suggested that Emiratis were 13% less likely to have lower total sperm count (TSC) compared to Global ($p<.001$). Whereas, approximately 58% of UAE nationals' samples exhibited teratozoospermia compared to 56% in other nationalities. After adjusting for confounders, analysis revealed a significantly higher prevalence (12%) of teratozoospermia among Emiratis compared to other nationals. **Conclusion:** Samples from UAE nationals displayed reduced sperm motility and normal morphology but increased TSC. Paucity of data on male fertility in the UAE and MENA region has previously hindered accurate estimation of male infertility. Owed to its sample size and statistical robustness, this study provides evidence addressing this gap, offering insights into interpretation of global data on reproductive health.

Keywords: male infertility, geographical region, semen parameters, UAE, MENA region

RC314

Risk of Cerebrovascular Accident in Hypertensive Adults in Dubai Health Facilities in 2022 and 2023

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Background: Strokes, commonly referred to as (CVAs) are the cause of mortality and morbidity worldwide. There has been growing concern about the increasing occurrence of strokes among adults, particularly in regions where hypertension is prevalent. The UAE, and Dubai in particular, have witnessed a rise in hypertension cases, raising questions about the stroke frequency in this vulnerable group. Despite the increase in hypertension cases and its association with strokes among adults in UAE, there is limited research available. Hence our main objective is to fill that knowledge gap. **Methods**: This observational retrospective cohort study followed all known hypertensive patients in Dubai Health (DH) facilities whose age was between 18 and 45 years, from the first of 2022 till the end of 2023, to determine who had developed a new stroke at that time and presented to any of DH hospitals (Rashid Hospital, Dubai Hospital, Hatta Hospital, and Latifa Hospital). Those identified were assessed for other end-organs damage, hospital course, disability, and death at baseline and after 3 months. **Results**: Our research studied 233 patients with a new first stroke presented to DH hospitals from 15,311 hypertensive patients aged from 18 to 45yeras in 2022 and 2023. The median age was 41 years with minimum 26 years and maximum 45 years, 84.5% were male from 26 different nationalities. Most common risk factors were obesity, hyperlipidemia, and smoking with percentages of 67%, 65%, and 42.3%, respectively. The primary endpoints showed that the mortality rate was 2.6% and more than half of the patients had disability scale between 2-4 MRS on discharge, which improved to 90% ≤ scale 3 after 3 months. During hospital stay, 11.5% underwent invasive procedures, 6.9% renal complications, 6.4% cardiac complications, and 5.7% readmission. **Conclusion**: To our knowledge, this is one of the few studies to study the risk of stroke in hypertensive adult patients in Dubai. The study gives us good information regarding the risk and incidence in our area in this age group. That motivates awareness among this age group.

Keywords: hypertension, cerebrovascular accident, stroke, Dubai

RC233

The Risk of Healthcare Professionals Developing Cardiovascular Disease in the UAE

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Background: In the year 2021, cardiovascular diseases were responsible for a staggering 20.5 million deaths worldwide, establishing them as the leading cause of mortality. Specifically, within the UAE, CVD accounted for 36% of all documented deaths. This study aims to evaluate the risk of developing cardiovascular disease and the prevalence of heart diseases among healthcare professionals within the UAE. It compares scores of cardiovascular diseases of different specialties within the healthcare sector. **Methods**: A self-administered, 44-item questionnaire was used to collect data from across the UAE, between January and March 2022. A total of 383 responses were collected and analyzed using IBM-SPSS-23. **Results**: The study sample comprised 67.7% (n=249) female participants, with 69.3% (n=255) of respondents aged between 30 and 45 years. Only 4% (n=15) of participants reported having CVD. Among the respondents, 18% (n=68) had smoked at some point in their lives. The average stress score among participants was 7.10, on a scale from 1 to 10. A significant majority of participants (67.1%; n=247) had a QRISK-3 score of 1.1 or lower, indicating very low risk. Males exhibited higher overall QRISK-3 scores (mean rank = 259.44) compared to females (mean rank = 158.54), with scores generally increasing with age. Those employed in the medical field had the highest QRISK-3 scores (mean rank = 304.67). Additional factors linked to elevated QRISK-3 scores included systemic lupus erythematosus (SLE), atrial fibrillation, a history of kidney disease, and type 2 diabetes. **Conclusion**: The findings of this study indicate that cardiovascular disease risk factors are prevalent among healthcare workers, highlighting the urgent need for targeted interventions to mitigate CVD risk in this population.

Keywords: cardiovascular disease, risk factors, risk score

RC82

RoboticScope-assisted Primary Cleft Palate Surgery: A Pilot Retrospective Cohort Study

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Introduction: The cohort pilot study compares conventional cleft palate surgery with RoboticScope-assisted surgery in eight pediatric patients. Cleft palate is one of the most common congenital anomalies affecting the craniofacial region, presenting a significant challenge in terms of surgical management and rehabilitation. Traditional approaches to cleft palate repair have predominantly involved conventional surgical techniques which, while effective, come with inherent limitations such as the requirement for wide exposure, the risk of significant scarring, and the variable outcomes in function and aesthetics. With the advent of technological advancements in the surgical field, robotic-assisted procedures have emerged as a promising alternative to conventional methods. RoboticScope used in surgeries, characterized by its precise, minimally invasive approach and enhanced visualization, has the potential to transform cleft palate repair. **Methods**: In 2024, this retrospective study reviewed the medical records of eight patients from a tertiary pediatric hospital in Dubai. The patients were divided equally: four underwent cleft palate repair with RoboticScope, and four did not. **Results**: Operative time: The RoboticScope group's average surgery time was 121 minutes, approximately 30 minutes longer than the non-RoboticScope group's average of 93 minutes. This increase in time is attributed to the setup of RoboticScope technology, familiarization with the machinery, and navigation during the surgery. Pain management: The requirement for morphine/nalbuphine was significantly reduced in the RoboticScope group compared to the non-RoboticScope group, where nearly all patients required these analgesics. Oral intake and patient recovery: Patients in the RoboticScope group demonstrated better oral intake during their inpatient stay. Notably, two patients in this group were discharged earlier than expected. In contrast, the non-Roboticscope group exhibited generally poor oral intake. **Conclusion**: The RoboticScope-assisted cleft palate repair surgery is safe, feasible, and effective. When compared to conventional methods, the RoboticScope has major advantages for the surgeon, patient, and hospital.

Keywords: cleft palate, RoboticScope, congenital anomalies

RC63

Safety Profile of COVID-19 Medication in Chronic Kidney Disease Patients: Renal and Hepatic Dysfunction Associated with Anti-viral and Tocilizumab Use: Single Center Study from Dubai Hospital

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Introduction: Coronavirus-19 disease is associated with increased morbidity and mortality in chronic kidney disease (CKD) patients. Choosing the appropriate therapy for COVID-19 patients with impaired renal functions is challenging, as the data available about medication dosage and safety in CKD patients are insufficient and contradictory. **Methods**: We conducted a retrospective study on 1425 COVID-19-infected patients who received anti-viral therapy (i.e., favipiravir, iopinavir-ritonavir, remdesivir, and tocilizumab). This study aimed to report renal and hepatic dysfunction associated with anti-viral therapy and tocilizumab, compare adverse drug events between CKD and non-CKD patients, and identify the safety profile of these medications in CKD patients. **Results**: Among 1425 COVID-19-infected patients, favipiravir, lopinavir-ritonavir, and remdesivir were used in 75.15%, 15.29%, and 13.19% patients respectively, also 25.89% were treated with tocilizumab. The incidence of renal function deterioration was 18.24%, while an increase in alanine transaminase (ALT) and aspartate transferase (AST) was noted in 34.24% and 23.78% of the patients. Patients with GFR<60 ml/min were 15.57 %, and 74 patients were on hemodialysis. In the CKD population, 86.93%, 28.37%, 8.10%, and 22.07% were treated with favipiravir, lopinavir-ritonavir, remdesivir, and tocilizumab, respectively. Of these patients, 37.83% had acute CKD, while 35.13% and 31.98% had an increase in ALT and AST. The incidence of acute renal function deterioration and increase in AST were significantly higher in the CKD population. In patients treated with favipiravir, renal deterioration was significantly more in CKD patients (p=<0.05), while an increase in ALT and AST was not significant in the two groups. In patients treated with Lopinavir, remdesivir, and tocilizumab, the incidence of renal deterioration and an increase in ALT and AST levels were not significant between the two groups. **Conclusion**: CKD patients had a significantly higher incidence of renal function deterioration and an increase in AST. Nevertheless, these abnormal lab parameters must be considered with other risk factors associated with severe COVID-19 infection, thus COVID medicine should not be denied to CKD patients.

Keywords: COVID-19, CKD, chronic kidney disease, favipiravir, lopinavir-ritonavir, remdesivir, tocilizumab

RC202

Schistosomiasis Presenting as Ruptured Ectopic Pregnancy

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Introduction: Female genital schistosomiasis (FGS) caused by *Schistosoma haematobium* affects 40 million females in sub-Saharan Africa. Most women at high risk of FGS are also at risk of human immunodeficiency virus (HIV) and human papillomavirus (HPV), which presents a threat to their reproductive and sexual health. This highlights the need for awareness and education about FGS among healthcare workers, together with improved access to diagnostic and treatment services. The aim of this report was to emphasize the importance of considering FGS as a potential cause of ectopic pregnancy and the need for collaboration between obstetricians and infectious disease physicians to reduce reproductive morbidity. **Case Report:** A sexually active African woman presented to the emergency department of a tertiary care hospital in Dubai with acute abdominal pain, her menstrual period commencing 2 days prior to presentation, stable vitals, and no signs of pallor. The laboratory results revealed hemoglobin level of 11.6g/dL and ßHCG of 4130mIU/mL. The pelvic ultrasound revealed a uterus mildly displaced to the left, endometrium measured at 0.4 cm, heterogeneous lesion in left adnexa, namely a small gestational sac-like cystic lesion measured 6.5 x 2.6 cm. Additionally, a moderate amount of free fluid and echogenic contents in the pelvis, raised possibility of ruptured ectopic pregnancy. She underwent laparotomy and left salpingectomy for left tubal ruptured ectopic pregnancy, and histopathology revealed presence of tubal schistosomiasis. She was discharged with a follow-up scheduled after 3 weeks; however, the patient was recalled for treatment of schistosomiasis. **Conclusion**: Given the genitourinary consequences of FGS and additional morbidity and mortality associated with ectopic pregnancy, it is of public health importance in endemic countries. Parasitic evaluation should be performed as an essential component of management for patients presenting with ectopic pregnancy from endemic areas.

Keywords: Obstetrics and gynecology, fertility, urinary and genital tract disorders, ectopic pregnancy, parasites

RC223

Single-cell RNA Sequencing to Identify Subpopulations of Mesenchymal Stem Cells from Different Types of Dental Tissues

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Introduction: Dental derived mesenchymal stem cells (dMSCs) play a vital role in maintaining tissue integrity and initiating repair processes due to injury. However, recent research has highlighted variability in the differentiation potential of dMSCs, with inconsistencies attributed to the use of nonspecific cell surface markers and technical limitations in isolation methods. This study proposed to utilize advanced single-cell RNA sequencing (scRNAseq) to profile cells from dental pulp (DPSC) and apical papilla tissues (SCAP), aiming to identify novel MSC subpopulations with superior regenerative capacities. **Methods**: Three DPSC and SCAP tissues each were isolated from human teeth and cultured up to passage 3. Single cells were loaded into the 10X Chromium® controller, and prepared libraries were sequenced with Illumina NovaSeq sequencer® to generate gene expression profiles of the subpopulations. Seurat package was used for dimensionality reduction and clusters were visualized using UMAP. Differential gene expressions for all clusters were estimated as log fold change using the function FindMarkers®, and further analysis utilized gene set enrichment analysis. **Results**: Transcriptomic analysis characterized 12 different clusters of cells derived from DPSC and SCAP samples. Combined data demonstrated similar biological processes for dental pulp and apical papilla. However, variations within specific clusters provided deeper insights into the molecular characteristics of dMSCs. Typical proliferating cell markers like *MKI67, TOP2A, TYMS* were specifically present in clusters 4, 5, 6, and 9, indicating proliferating cell population. In addition, unique pericyte markers like *NOTCH3* and *PDGFRB*, along with canonical markers like CD146, CD90, and CD44 were also present in cluster 9, indicating that this subcluster can be targeted for future validation. Interestingly, some of these markers, namely *NOTCH3* and *PDGFRB*, could also be identified in a more mature fibroblast population (dominated by collagen-related genes) in cluster 7. Moreover, the superprotein family, IGFBP3,4,5 was also detected in clusters 7 and 9 with significant contribution from apical papilla that may infer a superior regenerative potential. **Conclusion**: scRNAseq of cultured cells isolated from dental pulp and apical papilla revealed distinctive subpopulations with increased proliferative capacity predominantly from the apical papilla tissue.

Keywords: mesenchymal stem cells, dental pulp, single-cell RNA sequencing

RC87

Sleep Deprivation and its Impact on Physical and Mental Health Among Adults in UAE

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Introduction: Sleep deprivation is a global health concern. A study shows that more than 40% of UAE residents do not get enough sleep. Understanding the impact of sleep deprivation is vital as the nation continues its pursuit of good health for development and progress. Research on this topic within the UAE remains limited, highlighting the need to explore its prevalence and impact on health. **Methods:** This study employed a cross-sectional design among UAE residents aged 18-65 years. Data were collected between September and December 2023 and analyzed using SPSS software to produce descriptive statistics. **Results:** The study sample included 321 participants. In groups consisting of adequate sleep and sleep-deprived participants, both had comparable proportions of healthy and unhealthy individuals, which might indicate that sleep quality alone is not a decisive factor in determining physical health. Results for individuals with adequate sleep demonstrated that 19% frequently forgot things as opposed to 25% of the sleep-deprived participants. Sleep-deprived individuals also reported a higher percentage of feeling irritable (24.2%). Our study showed a significant association between sleep quality and feelings of depression and anxiety. Among sleep-deprived individuals, 22% frequently felt depressed, compared to 15% of those with adequate sleep. Similarly, 28.5% of sleep-deprived individuals frequently felt anxious, compared to 21.7% of those with sufficient sleep. Overall, these findings indicated a strong link with significant *p*-values of 0.021 and 0.040, respectively. Of the 236 participants who drove, 8.8% have been involved in road traffic accidents (RTA), of which 5.3% were sleep-deprived participants who reported dozing off while driving. **Conclusion:** Our results highlight the importance of considering sleep quality as a multicomponent measure and underscore the need for further research to explore its broader effects on mental and physical health across different populations.

Keywords: sleep deprivation, physical health, mental health

RC25

A Staged Approach to Managing a Combination of a Terrible Triad Injury and an Essex-Lopresti Fracture-dislocation – An Open-forearm Crush Injury: A Case Report

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Background: Open and crushed forearm injury is a complex and rare injury affecting the upper extremity. It results in damage to various structures, including bones, soft tissues, and neurovascular bundles, ultimately leading to functional impairment. Typically, these injuries occur due to high-energy trauma. **Case Presentation:** A 19-year-old South Asian male was seen at our trauma center emergency department following an accident where his arm got entangled in a machine belt. He sustained a serious open injury on his left forearm, spanning from the elbow to the wrist, affecting the proximal radio-ulnar joint (PRUJ), ulna bone, interosseous membrane (IOM), and distal radio-ulnar joint (DRUJ). The initial plan of care involved stabilizing the injury using an external fixator, while reconstructive surgery was scheduled for a later date. **Conclusion**: Timely intervention for wound debridement and joint stabilization plays a crucial role in the restoration of a crushed forearm. Following this, a collaborative effort from a multidisciplinary team becomes essential. Planning multiple surgeries is important, with the primary goal of achieving early range of motion (ROM) of the elbow and wrist to prevent stiffness. This comprehensive approach aims at optimizing the recovery and functionality of the affected limb. The combination of early intervention, damage control surgeries, and carefully planned procedures sets the foundation for successful management of a crushed and open forearm injury. Furthermore, early range of motion and physiotherapy rehabilitation have key roles in stiffness prevention and the restoration of function.

Keywords: forearm, crush injury, open fracture, interosseous membrane, case report

RC06

Statins as Novel Modulators of Inflammation in Colorectal Cancer: Targeting PAR-2 and TNF-α Signaling Pathways

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Background: Obesity and hyperlipidemia are well-established risk factors for colorectal cancer (CRC), largely due to chronic inflammation. Key inflammatory mediators such as protein-activated receptor 2 (PAR-2) and tumor necrosis factor-alpha (TNF-α) play central roles in inflammation-driven tumorigenesis. Statins, competitive inhibitors of HMG-CoA reductase, are known for their lipid-lowering properties, but their anti-inflammatory potential in CRC remains underexplored. Given their known modulation of calcium signaling, a critical factor in cancer cell proliferation and apoptosis, we hypothesized that statins may also target calcium-dependent inflammatory pathways in CRC. **Methods**: We examined the effects of atorvastatin (ATV) and rosuvastatin (RSV) on two colorectal cancer cell lines, HT-29 and CaCo-2, focusing on both inflammation and calcium signaling. PAR-2 and TNF-α expression were analyzed via ELISA, Western blot, and RT-PCR. We also investigated the modulation of calcium-dependent pathways to determine how statins influence key signaling cascades, including NF-κB, MAPK, PI3K/Akt, and calcium homeostasis in these cell lines. Bioinformatics tools and statistical analyses were employed to validate the results. **Results**: Both ATV and RSV significantly inhibited PAR-2 and TNF-α expression in HT-29 and CaCo-2 cells. In addition, statins were found to modulate calcium signaling, influencing downstream pro-inflammatory pathways such as NF-κB, MAPK, and PI3K/Akt. These results suggest that statins, through their modulation of PAR-2 and calcium-dependent signaling, advantageously affect cancer cell behavior and inflammation-driven CRC progression. **Conclusion**: Our study reveals a novel anti-inflammatory and calcium-regulating role of statins in colorectal cancer, specifically through the inhibition of PAR-2, TNF-α, and calcium-dependent pathways. These findings highlight statins as promising therapeutic agents for CRC management, offering potential for further clinical and pharmacodynamic research, particularly in obesity and hyperlipidemia-associated cases.

Keywords: colorectal cancer, PAR2, statins, inflammation, hypercholesterolemia, apoptosis

RC222

Studying Autophagy as a Molecular Mechanism of Chemotherapy Resistance in Triple Negative Breast Cancer

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Introduction: Breast cancer is the most common type of cancer in women, affecting more than 2 million women worldwide each year. Triple negative breast cancer (TNBC), a highly metastatic and aggressive subtype, accounts for 10-15% of all breast cancer cases. Due to its molecular phenotype, hormonal and targeted therapies are ineffective and chemotherapy is the standard treatment option for TNBC. Resistance to chemotherapeutic agents is common in TNBC, leading to an increased chance of relapse and/or metastasis. Autophagy is a crucial molecular mechanism that contributes to chemoresistance. Autophagy, a self-degrading process, allows cancer cells to survive stressful conditions by providing an alternative energy source. Several studies have demonstrated that suppressing autophagy increases chemosensitivity in cancer cells. **Methods**: In this study, we investigate the role of *CREBRF*, a predicted regulator of autophagy, in mediating chemoresistance in TNBC. *CREBRF* is a transcription factor that is involved in the unfolded protein response. Autophagy and unfolded protein response have been found to occur at the same time and the deregulation of both processes contributes to tumorigenesis as well as chemoresistance. In this work, we aim to study the molecular role of *CREBRF* in regulating autophagy and establish its role in modulating chemoresistance. **Results**: We have identified *CREBRF* as a critical, regulated target in TNBC. *CREBRF* expression is modulated upon serum starvation, hypoxia, or Rapamycin treatment (conditions that induce autophagy). Further, using multiomic techniques such as ChIP-seq, RNA-seq, and mass spectrometry, we are currently identifying the gene targets regulated by *CREBRF* in TNBC. **Conclusion**: This work will shed light on the molecular basis of autophagy regulation in TNBC, and how it contributes to the development of chemotherapy resistance. A better understanding of the regulatory mechanisms controlling autophagy is instrumental for understanding the biology of drug-resistant phenotypes and could aid in the development of effective therapies for TNBC.

Keywords: breast cancer, chemotherapy, drug resistance, autophagy, transcription factor

RC131

Successful Cesarean Section for a Ruptured Uterus with Severe Intra-abdominal Pus Collection: A Case Report

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Case Report: A 32-year-old G2P1+0 pregnant patient presented to the emergency department with severe abdominal pain and fresh moderate vaginal bleeding that had started a couple of hours prior. Her gestational age (GA) at the time of presentation was 27 weeks and 2 days by her last menstrual period (LMP). Upon examination, her abdomen was found to be soft while her vaginal examination revealed a posterior cervix with the os closed, and a fetal body part was felt at the right adnexa. A bedside abdominal ultrasound scan was performed and a single live fetus was found with fluid collection around the fetal head. Hence, a diagnosis of uterine rupture was made, and the patient was shifted to the operation room for an emergency lower segment cesarean section (LSCS) under general anesthesia. The patient delivered an 800-gram live baby. Intraoperatively, it was found that there was a chronic complete rupture of the uterus at the previous scar with large amounts of intraabdominal and uterine pyogenic collections. Postoperatively, the patient was then shifted to the intensive care unit (ICU) where she was given intravenous antibiotics, which improved her clinical condition. During the remainder of her stay, she made an uneventful recovery and was discharged. **Conclusion**: Uterine rupture represents a rare but critical obstetric emergency, commonly linked with heightened risks of maternal and neonatal mortality. Diagnosis can be challenging due to the typically nonspecific nature of signs and symptoms. However, improved intrapartum monitoring, advancements in medical interventions, and a collaborative, multidisciplinary approach involving anesthesiologists, obstetricians, neonatologists, intensivists, as well as other medical and surgical specialists tailored to the patient's condition can help mitigate the potential consequences associated with this condition.

Keywords: uterine scar, cesarean section, uterine rupture, dehiscence

RC197

Successful Co-administration of Dupilumab and Anti-tuberculosis Drugs in a Severely Uncontrolled Asthma Patient with Pulmonary Tuberculosis

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Background: The co-occurrence of active tuberculosis (TB) in patients with moderate to severe asthma presents unique therapeutic challenges, particularly with the advent of biologics like dupilumab for asthma treatment. Despite the general safety of biologics, concerns about immunosuppression and susceptibility to infections like TB persist. This study discusses a male with severe, uncontrolled type 2 allergic asthma who concomitantly developed pulmonary TB. **Case Report**: A 39-year-old male with severe, uncontrolled type 2 allergic asthma presented with recurrent exacerbations despite maximal bronchodilator therapy. Due to worsening symptoms, a CT scan performed in October 2022 revealed findings consistent with TB. Bronchoscopy with bronchoalveolar lavage confirmed acid-fast bacilli, and tuberculosis therapy was initiated for six months. Concurrently, dupilumab was administered to manage asthma symptoms. **Methods:** We conducted a thorough chart review analyzing the patient's medical history, medications, and timing of biologic injections. The review included tracking the patient's asthma control tests (ACT), fractional exhaled nitric oxide (FENO) levels, and imaging. The patient's response to treatment was monitored throughout the course of both dupilumab and anti-TB therapy. The patient's consent was obtained to share his case details. **Results**: The patient experienced significant improvement in asthma control following the initiation of Dupilumab. His ACT score improved from 7 to 19 within months, with a further improvement to 25 after one year of treatment. FENO levels decreased from 46 to 26 parts per billion (PPB). TB-related symptoms and chest CT findings also improved with the anti-TB regimen, with no adverse interactions reported between the biologic and anti-TB therapies. **Conclusion**: This case suggests that Dupilumab can be safely co-administered with anti-TB therapy in patients with severe asthma and concurrent TB. The positive outcomes in asthma control and TB treatment highlight a potential therapeutic approach for similar clinical scenarios.

Keywords: tuberculosis, asthma, dupilumab, biologics, co-administration

RC275

Suspected Partial Molar Pregnancy with Coexisting Fetus in the Third Trimester Differentiated from Placental Mesenchymal Dysplasia

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Background: Partial hydatidiform molar pregnancy rarely continues to the third trimester. Partial molar pregnancy with a coexisting fetus is a rare occurrence accounting for 0.005 to 0.01% of all pregnancies. Most partial molar pregnancies lead to a first trimester miscarriage. **Case Presentation**: A partial hydatidiform molar pregnancy was diagnosed at 15 weeks gestation by ultrasonography in a 26-year-old Pakistani woman. After being fully informed of her options, the patient chose to continue the pregnancy. At 25 weeks gestation, ultrasound showed a single enlarged placenta with multiple cystic spaces and intrauterine fetal growth restriction features with normal fetal anatomy and oligohydramnios. At 32 weeks and 4 days gestation, intrauterine fetal death was diagnosed, and the pregnancy was terminated. Histopathology showed hydropic degeneration. There were no maternal complications. Ultrasound findings of hypoechoic spaces in the placenta with a normal fetus, fetal growth restriction, or fetal overgrowth can indicate placental mesenchymal dysplasia or molar pregnancy. Histopathology of placentomegaly and vesicles resembling grapes revealed hydropic degeneration, which is found in both partial molar pregnancy and placental mesenchymal dysplasia. To differentiate between the two conditions, karyotyping a sample from amniocentesis and alpha-fetoprotein levels can be utilized. **Conclusion**: Partial molar pregnancy and placental mesenchymal dysplasia remain challenging to diagnose as they overlap in ultrasonographic and histopathological features. It is important to include both conditions in the differential list and investigate the patient case thoroughly because the management differs with the determining factor of pregnancy termination or continuation.

Keywords: partial molar pregnancy, partial hydatidiform mole, placental mesenchymal dysplasia, coexisting fetus

RC187

Teenage Pregnancy: Maternal and Perinatal Outcomes in Tertiary Care Hospital in Dubai

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Introduction: Adolescence, defined by the World Health Organization as the ages between 10 and 19 is a critical transitional period marked by biological, psychological, and social changes. This age group, representing about 30% of the global population, faces significant health challenges, particularly regarding adolescent pregnancy. Annually, around 16 million young women aged 15-19 give birth, accounting for 11% of all global births. In low- and middle-income countries, adolescent pregnancy is a leading cause of death, often linked to higher risks of adverse outcomes due to biological immaturity and socio-economic and behavioral factors such as malnutrition and inadequate prenatal care. Despite extensive research in developing countries, there is limited data on teenage pregnancies in developed nations. **Methods**: A retrospective study was conducted at Latifa Hospital in Dubai, comparing maternal and neonatal outcomes between teenage mothers (≤19 years) and mothers aged 20-30 years, using data from medical records between January 2020 and December 2023. **Results**: Key findings include a significantly higher incidence of being overweight in the 20-30 age group (53.4% vs. 36.3% in teenagers) and higher rates of anemia at mid-trimester in teenage mothers (44.7% vs. 28.3%). The older age group also showed a higher prevalence of gestational diabetes (18.3% vs. 6.5%) and the teenage group had higher neonatal intensive care unit (NICU) admission rates (23.6% vs. 13.3%). Rates of pregnancy-induced hypertension, placenta location, SGA/IUGR, preterm labor, PPROM, gestational age, labor induction, and mode of delivery were similar across groups. **Conclusion**: This study highlights the need for targeted healthcare interventions to address the specific challenges faced by teenage mothers in Dubai. Enhancing prenatal, antenatal, and intrapartum care can significantly improve pregnancy outcomes for this vulnerable group.

Keywords: adolescence, teenage pregnancy, anemia, NICU, specialized care

RC308

Ten Color REALB Tube—Can This be the Beginning of Flow Cytometric Measurable Residual Disease (MRD) Assay Standardization?

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Introduction: Flow cytometry testing for minimal/measurable residual disease (FC-MRD) is a highly sensitive assay, which detects 1 diseased cell in 10,000 cells (10-4 or 0.01%). The standardization of MRD assays is the biggest challenge across flow cytometry laboratories. This is due to the variability in antibody panels, processing, assay sensitivity, and reporting. The aim of this study was to validate Beckman Coulter dried antibody tube, Duraclone Rare Events (RE-ALB) for MRD in B-ALL and evaluate its applicability in Dubai Health laboratories. **Methods:** RE-ALB tube was studied for MRD in 25 bone marrows of B-ALL and compared to the in use 5-color MRD assay. It is a 7-color tube comprised of CD45, CD58, CD34, CD10, CD19, CD38, and CD20 antibodies. Drop in markers CD73C PE/CD66C PE, CD123 APC, and CD9 PB were added to the vacant channels in the tube. More than 1 million events could be acquired for 22 of 25 cases. Proficiency testing (PT) samples were also compared. Additionally, multicenter workshops were conducted for the standardization of pre-analytical, analytical. and post-analytical phases of testing for MRD. **Results:** 100% diagnostic concordance was found between RE-ALB tube and 5-color panel. Twenty-one of 24 patient cases and 2 of 4 PT samples were MRD negative by both methods. MRD was measurable in four cases by both methods. RE-ALB showed 0.26%, 0.06%, 0.03 %, and 0.01% residual disease matching the same MRD levels by using the 5-color panel tubes. The average coefficient of variation obtained on comparing the population of interest was acceptable at 17.02%. We achieved the international recommended sensitivity of 0.01% for all our patients' samples. **Conclusion:** The use of REALB tubes improved workflow by reducing processing and analysis time and obtaining high sensitivity MRD assay was possible even for small volume samples. It helped minimize errors and reagent wastage and allowed better inventory management. This led to the standardization of the entire MRD testing process across Dubai health labs. Our lab is established as the reference lab for MRD testing in Dubai.

Keywords: validation, B-acute lymphoblastic leukemia, minimal residual disease, standardization

RC250

Thyroid Trauma: A Forgotten Suspect in Thyrotoxicosis

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Background: Trauma-induced thyroiditis is a rare entity which, in addition to the well-established complications of thyrotoxicosis, adds additional morbidity due to risk of injury to neck vessels and hematoma-related tracheal compression. **Case Presentation**: We present the case of a previously healthy, 26-year-old motorbike rider, brought to the emergency department post-collision with complaints of neck pain and swelling, among other injuries. Imaging showed right-sided anterior neck hematoma with active bleeding and rupture of the right thyroid lobe and isthmus. Explorative surgery revealed a non-expanding hematoma with partial laceration of the isthmus and the right lobe. Hematoma evacuation and thyroid repair were performed. Laboratory results reflected biochemical thyrotoxicosis with no clinical evidence of thyroid storm. Of note, underlying autoimmune thyroid disease was excluded with antibody testing. He was successfully rendered euthyroid with a combination of steroids, beta-blockers, and cholestyramine, which were gradually tapered off in outpatient follow up. **Conclusion:** Literature on the incidence, management, and outcomes of thyroid injury is limited, with one study reporting an incidence rate of less than 0.1%. Experts have tried to classify blunt thyroid injuries to aid management, but there are no universally accepted guidelines. It is imperative for clinicians to be aware of and consider the diagnosis, especially in cases of blunt trauma as initial evaluation may not reveal symptoms. Careful history to ascertain pre-existing thyroid disease is crucial as authors have described increased susceptibility of goitrous glands to traumatic rupture. Additionally, autoimmunity remains the most common cause of thyrotoxicosis and would alter management. Controlling thyrotoxicosis in our case was imperative to mitigate systemic complications and anesthesia risks as patient was planned for further surgery. To add to the challenge, his liver function showed transaminitis, restricting the use of thionamide therapy. This case highlights a rare cause of thyrotoxicosis and the need for research to devise a structured classification and management strategy.

Keywords: trauma-induced thyroiditis, thyrotoxicosis, thyroid laceration

RC228

TIGAR Protein and Role in Cancer Cell Metabolism

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Background: TIGAR, encoded by the *TP53-induced glycolysis and apoptosis regulator* gene, plays a crucial role at the intersection of metabolic homeostasis and cell survival. Responsive to cellular stress and linked to the tumor suppressor *TP53*, TIGAR's intricate involvement in cellular processes has significant implications in cancer biology. TIGAR, due to its association with various cancers, presents itself as a promising candidate for precision medicine. It maintains an intricate balance between promoting glycolysis for energy production and inhibiting apoptosis for cell survival positions. TIGAR's involvement adds a layer of complexity to tailoring treatments based on the molecular characteristics. The dynamic expression patterns of TIGAR across different cancer types underscore its potential as a biomarker. Elevated levels, particularly in aggressive tumors, suggest its utility in early detection, prognosis, and monitoring treatment responses. The intricate interplay between TIGAR and *TP53* enhances biomarker insights, unraveling molecular intricacies in tumorigenesis. TIGAR also presents itself as a compelling therapeutic target. Manipulating TIGAR expression or activity could disrupt the delicate balance between glycolysis and apoptosis, tipping the scales towards cancer cell death. Precision therapies targeting TIGAR could offer a tailored approach to cancer treatment, exploiting the specific vulnerabilities of tumor cells. However, challenges lie in developing strategies that selectively modulate TIGAR without causing undue harm to normal cells, emphasizing the need for precise and targeted interventions.**Results:** Our study screened TIGAR expressions in different cell lines using cell culture, western blot technique, wound healing assay, and MTT cell viability assay. The cell lines used were MDA-231 and MCF7 for breast cancer and they revealed higher expression in more aggressive tumors, emphasizing TIGAR's potential as a marker for tumor aggressiveness. **Conclusion:** TIGAR stands as a key player in cellular processes, serving dual role as a biomarker and a therapeutic target. Further research into its molecular intricacies is vital for unlocking its potential and advancing precision medicine in the fight against cancer.

Keywords: TIGAR, cancer, metabolism, breast cancer

RC307

To 'B or not B' – Case Report of a Challenging Case of B-ALL

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Introduction: Acute lymphoblastic leukemia (ALL) is a common malignancy and represents 25% of cancer diagnoses in children. Therapy related AML is rare with an incidence of 0.5–1% in childhood. It usually occurs after exposure to alkylating agents and topoisomerase II inhibitor therapy. We report a case of the rare phenomenon of t-AML with monocytic differentiation that developed in a patient of B-ALL, on maintenance therapy. **Case Report**: An 11-year-old male presented with progressive fatigue for 2 weeks. Complete hemogram showed neutropenia and thrombocytopenia. The peripheral blood examination showed 53% blasts. Subsequent bone marrow aspirate examination and immunophenotyping showed blasts which expressed CD19, CD10, CD34, CD38, and dim CD45. He was diagnosed with pre-B-ALL. Fluorescent in situ hybridization (FISH) analysis targeting *CDKN2A(P16)*, *BCR/ABL1*, *KMT2A(MLL)*, *TCF3* was normal in all nuclei examined. *ETV6-RUNX1* fusion was detected. He was regarded as high risk ALL, in view of his age. He was started on therapy as per protocol COG AALL 1732. Post induction, there was no evidence of minimal residual disease. Eighteen months into his treatment period, during the third cycle of maintenance therapy, his full blood count showed leukocytosis (16,000/ul) and monocytosis (3520 cells/ul). His white blood cell count increased to 102,000/ul over next 10 days. Blood film examination showed 81% blasts/promonocytes. Flow cytometry confirmed the diagnosis of AML with monocytic differentiation with no evidence of lymphoblasts. FISH showed *KMT2A(MLL)* gene rearrangement. This rearrangement was negative at the time of initial diagnosis of B-ALL. Next generation sequencing (NGS) showed *TP53* mutation. The constellation of these findings confirmed the diagnosis of therapy related AML. Patient was started on hydration, hydroxyurea, and supportive care. Patient succumbed to the disease in a months' time from starting therapy due to complication of sepsis. Therapy-related AML usually occurs after 2-5 years of therapy of B-ALL. In our patient, this occurred 18 months from the start of therapy. Cytogenetics evaluation of these cases showed 23% had *KMT2A (MLL)* rearrangement (similar to our patient), 23% had complex cytogenetics, and 36% normal cytogenetics. These patients usually harbor poor prognosis.

Keywords: B-ALL, therapy related, KMT2A(MLL) gene rearrangement

RC113

Top 10 Diagnoses for Children Visiting Dubai Health Facilities in 2023

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Background: Pediatric healthcare is a critical area of focus; hence, ensuring access to timely and appropriate care for children not only promotes healthier populations and alleviates the strain on healthcare systems but also reduces morbidity and mortality rates. Understanding the most common pediatric presentations in emergency departments and primary healthcare centers is crucial for optimizing healthcare resource allocation, improving patient outcomes, and enhancing clinical protocols. This study aims to identify and analyze the top 10 diagnoses for pediatric patients aged one to 12 years visiting Dubai's health facilities in 2023. **Methods**: This is a retrospective descriptive study. The data were collected from Dubai Health's electronic medical records system for the pediatric patients who visited emergency departments and primary healthcare centers between January 2023 and December 2023. Microsoft Excel was used to analyze the data. **Results**: In 2023, Dubai Health facilities served 97,328 pediatric patients. The majority (49%) were treated at primary care centers, with significant visits also at Aljalila Children Hospital (41%), Hatta Hospital (5%), and Rashid Hospital (6%). Acute upper respiratory infections were the most common diagnosis, with variations across facilities: 40% at Aljalila Children Hospital, 54% at Hatta Hospital, and 31% at primary care centers. Rashid Hospital reported mostly injury-related cases, including head injuries (9%) and lacerations (8%). **Conclusion**: The study findings highlight the significant overlap between cases seen at emergency departments and primary healthcare centers, suggesting that a considerable number of cases presented to the emergency departments could be effectively managed at primary healthcare centers.

Keywords: pediatrics, emergency department, primary healthcare centers, Dubai Health

RC232

Transcription Factor FOXC1 Promotes Chemotherapy Resistance in TNBC Through Instating Active Chromatin State

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Background: Chemotherapy resistance is the leading cause of mortality in breast cancer patients. Among all subtypes, triple-negative breast cancer (TNBC) is the most likely to develop chemotherapy resistance, resulting in the poorest prognosis. Recent studies have strongly linked disruptions in the chromatin landscape to chemotherapy resistance and cancer recurrence. Therefore, identifying key drivers of chromatin regulation during cancer progression is essential for developing novel therapies. The transcription factors *FOXC1* and *NR2F2* are notably overexpressed in TNBC, with high expression correlating with poorer responses to chemotherapy. **Methods:** We performed proteomic analysis (RIME) to identify *FOXC1*'s direct interactors in TNBC. In addition, ChIP-Sequencing analysis was used to generate a comprehensive map of *FOXC1*-regulated chromatin regions. Through CRISPR-mediated *FOXC1* knockout and *NR2F2* knockdown, we investigated how the loss of these proteins affects the chromatin state and alters cellular responses to chemotherapy. Finally, we tested CIA1, a chemical compound specific to *NR2F2*, to determine if it could disrupt the *FOXC1-NR2F2* interaction, its impact on chromatin state, and its influence on cells' response to chemotherapy treatment. **Results:** We found that the loss of either *FOXC1* or *NR2F2* led to the upregulation of the repressive histone mark H3K27me3, which increased cell vulnerability to chemotherapy. Treatment of TNBC cells with the novel compound CIA1 disrupted the *FOXC1-NR2F2* interaction, resulting in higher levels of H3K27me3 and enhanced cellular responsiveness to chemotherapy. **Conclusion**: The balance between repressive and active chromatin states is key to how cells respond to chemotherapy. Our data reveal that the interaction between *FOXC1* and *NR2F2* establishes a chromatin state that confers resistance to chemotherapy, highlighting a critical mechanism in modulating chromatin dynamics and chemotherapy sensitivity. By identifying a novel compound that disrupts this interaction, we successfully shifted the chromatin state to a more responsive form, sensitizing TNBC cells to chemotherapy treatment.
Keywords: chemotherapy-resistance, breast cancer, FOXC1, chromatin

RC88

Transient Osteoporosis of the Hip: A Case Report

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Background: Transient osteoporosis of the hip (TOH), also referred to as bone marrow edema, is a rare and self-limiting condition, typically affecting middle-aged men and women in late pregnancy. The etiology remains unclear, with potential causes including vascular disruption and altered bone remodeling. TOH mainly affects the hip, presenting with pain and reduced bone mineral density. **Methods:** A 58-year-old male presented with a 2-month history of lower back pain radiating to his left hip. Initial X-rays and MRI of the lumbar spine indicated mild lumbar disc prolapse at L5-S1 and spondylolysis. Further imaging, including an MRI of the left hip and bone scintigraphy, revealed bone marrow edema and abnormal uptake in the femoral head. Laboratory tests returned normal values across multiple parameters. **Results:** The patient was diagnosed with TOH based on MRI findings of bone marrow edema and increased uptake on scintigraphy. He managed conservatively with nonsteroidal anti-inflammatory drugs (NSAID), activity modification, and medications for osteoporosis. Follow-up imaging confirmed the persistence of the bone marrow edema, but no fractures or osteonecrosis were noted. The patient's treatment included pain management and physical therapy to improve mobility and prevent further bone deterioration. **Conclusion:** This case highlights the importance of comprehensive diagnostic work-up for TOH, particularly when comorbid lumbar spine issues are present. Conservative management focusing on pain relief, activity modification, and bone health optimization can lead to successful outcomes in patients with TOH.

Keywords: transient osteoporosis, acute hip pain, bone demineralization

RC36

Trauma-induced Intracranial Meningioma: A Case Report and Review of Literature

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Case Presentation: We present two cases of meningiomas developed at the site of an old head trauma. The first case is a 37-year-old male patient known to have intractable seizure presented with incidental meningioma after repetitive head injuries. The second case is a 67-year-old female patient with history of car accident-caused head injury with negative initial brain images, after one year found to have frontal lobe meningioma. Published literature showed controversies regarding the development of post-traumatic brain meningiomas. Assessment of clinical characteristics in these patients seems to confirm that in some

cases, head trauma may be a factor contributing to the development of intracranial meningioma. Although they are not common sequelae of head trauma, it is proposed that they may arise when the injury results in arachnoid proliferation, chronic inflammation, or granuloma formation leading to meningeal irritation and neoplasm formation.

Keywords: neurosurgery, meningioma, trauma

RC48

Twitter's Impact on Student Engagement in Undergraduate Medical Education: A Scoping Review

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Introduction: Twitter is a social media tool that provides a real-time platform for students to engage with their instructors and peers beyond the traditional classroom setting. However, little is known about Twitter's impact on student engagement in undergraduate medical school. This scoping review explored the available evidence on using Twitter in undergraduate medical education and its potential impact on student engagement. The aim was to explore the utility of Twitter as an educational tool in medical education, describe the impact of Twitter on student engagement with course content, instructors, and peers, and present the evidence supporting the use of Twitter in medical education. **Methods:** This review followed a five-step framework. A search from seven bibliographic databases identified 248 relevant articles, of which 13 full-text articles met the inclusion criteria for review. Findings were reported in concordance with the Preferred Reporting Items for Systematic Reviews and Meta-analysis for scoping reviews. Inclusion criteria: Studies that reported on Twitter interventions, medical undergraduate students, and student engagement. **Results:** The literature was organized thematically according to the following categories: Twitter-based interventions in medical education, Students' perceptions of Twitter as an educational tool, Types of student engagement, and Benefits and challenges of using Twitter in medical education. **Conclusion:** Twitter offers unique advantages as an educational tool in undergraduate medical education, including, but not limited to, broader access to tutors, opportunities for micro-learning, and virtual communities of practice. It can potentially enhance student engagement. However, further research is needed to address gaps in evaluating Twitter's impact on student engagement and performance.

Keywords: Twitter, social media, medical students, student engagement, micro-learning

RC74

Understanding Immunization Perspectives: Exploring Maternal Knowledge, Attitudes, Practice, and Stakeholder Perceptions on Barriers and Challenges in the UAE: A Mixed Methods Study

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Introduction: Vaccination is essential for protecting individuals and communities against infectious diseases and preventing outbreaks. Since mothers are often the primary caregivers for children, they need to be well-informed about childhood vaccinations from reliable sources. This study aimed to explore differences in knowledge, attitudes, and practices regarding immunization among Emirati and expatriate mothers in Ras Al Khaimah, and to identify the barriers and challenges to vaccination in the UAE as perceived by different stakeholders. **Methods:** A mixed-method study involving quantitative and qualitative components was conducted. Using a validated structured questionnaire, 207 mothers were interviewed using consecutive sampling at the Primary Health Care Centers (PHCCs) and hospitals. Fourteen stakeholders (mothers, doctors, nurses, and pharmacists) were interviewed using an in-depth interview technique to understand the challenges and barriers to vaccination. **Results:** Our study reveals distinct differences in attitudes toward childhood vaccination between Emirati and expatriate mothers. Of the participants, 30% were Emiratis. Fifty-five percent of children received vaccination from PHCCs. No statistical difference in vaccination rates was observed between locals and expats. Significant differences were observed in efficacy, safety scores of the knowledge component, reasons, and hesitancy scores of the attitude component between locals and expats. Around 25% of mothers reported delays in receiving one or more vaccines. The primary barrier identified was a lack of awareness. The themes generated after qualitative data analysis were beliefs and misconceptions, cultural and societal influences, systemic issues and challenges, healthcare system-related issues, and recommendations for improvement. **Conclusion:** These findings emphasize the importance of creating targeted communication strategies and comprehensive methods to overcome barriers to childhood vaccination in the UAE. To ensure that the best possible vaccination uptake occurs, extensive community engagement and efficient health communication are essential. Implementing interventions like doctor consultations and group meetings can help increase awareness and boost vaccination rates among different populations.

Keywords: immunization, KAP, mixed methods study, vaccination

RC56

Understanding the Patterns of Emergency Department Visits in Dubai Health Hospitals: A Top 10 Analysis

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Introduction: The urban landscape of Dubai has led to an increased demand for emergency medical services. This study aims to analyze emergency department (ED) visits in Dubai Health hospitals, focusing on the top 10 reasons for these visits. Understanding these patterns can optimize resource allocation and improve patient care. **Methods:** Observational and retrospective cohort study of adult ED visits between January 1st, 2023, and December 31st, 2023. **Results:** There were 340,466 ED visits, with 229,567 (67%) by adults aged 18 or older. The majority of visits were by patients aged 18-35 (51.6%), and males accounted for 56.4% of adult ED visits. Most visits were classified as urgent (58.2%) and occurred during the evening and late-night hours, peaking at 8 pm, 9 pm, and 10 pm. The top reasons for ED visits were abdominal pain, fever, assault, chest pain, and dizziness. The most common primary diagnoses were upper respiratory tract infection, assault, chest pain, renal colic, and gastroenteritis. The top diagnoses for the most critical patients were death on arrival, STEMI, intracranial hemorrhage, and cardiac arrest. The majority of ED patients (72%) were discharged home, while 11% were admitted to the hospital. The top admission diagnoses were NSTEMI, stroke, STEMI, pneumonia, and intracranial hemorrhage. **Conclusion:** The analysis provides valuable insights into healthcare utilization patterns. Targeted interventions and educational programs for younger adults could reduce ED strain. The high number of urgent visits during evening and late-night hours suggests the need for strategic staffing and resource allocation. Addressing common health concerns through preventative measures and primary care could alleviate ED loads. Enhancing acute care protocols and emergency preparedness is important for critical diagnoses. Further investigation into discharge and admission criteria could optimize patient flow and care quality. This study describes the patterns of ED visits and can inform staffing, resource planning, and process improvements to enhance emergency care delivery. Continuous monitoring and tailored healthcare strategies are important to meet the dynamic needs of Dubai's population.

Keywords: emergency department visits, chief complaint, primary diagnosis, disposition plan

RC245

Unraveling the *FOXC1-NR2F2* Interaction: Chromatin Regulation and New Therapeutic Avenues in Triple-negative Breast Cancer

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Introduction: Triple-negative breast cancer (TNBC) is a highly aggressive subtype of breast cancer, defined by the absence of estrogen receptor (ER), progesterone receptor (PR), and human epidermal growth factor receptor 2 (HER2) expression. This molecular profile limits therapeutic options, making chemotherapy the standard treatment. However, many TNBC patients develop resistance to chemotherapy, resulting in poor survival outcomes. Transcription factors, key regulators of gene expression, are essential drivers of cancer progression. FOXC1 is an oncogenic transcription factor strongly associated with TNBC's aggressive behavior, including enhanced metastasis and drug resistance. NR2F2 is one of the key interacting partners of FOXC1 in TNBC, yet their functional interaction remains largely unexplored. Investigating the mechanisms underlying the FOXC1-NR2F2 complex could provide deeper insights into TNBC biology and offer new avenues for therapeutic intervention. **Methods:** We have developed different constructs of the FOXC1 and NR2F2 proteins to identify the specific domains of these transcription factors involved in complex formation. To further investigate the chromatin dynamics when the FOXC1-NR2F2 complex is destabilized, we employed chromatin immunoprecipitation sequencing (ChIP-seq) to provide deeper insights into the regulatory changes that occur in the absence of a stable interaction between these factors. **Results:** We have identified that FOXC1 and NR2F2 interaction occurs through the NR2F2 ligand binding domain without disrupting the DNA binding domain of NR2F2. Disruption of the FOXC1-NR2F2 interaction via the CIA1 compound resulted in chromatin repression, indicating a potential regulatory role of this complex in maintaining active chromatin states. **Conclusion:** The interaction between FOXC1 and NR2F2 plays a pivotal role in TNBC progression and the development of chemotherapy-resistant clonal cells. Disrupting this interaction has the potential to slow cancer progression and enhance the sensitivity of TNBC cells to treatment, presenting a promising new therapeutic approach.

Keywords: TNBC, FOXC1, NR2F2, Chromatin

RC231

Unusual Case of IgG-mediated Cold Agglutinin Syndrome in a Patient with Marginal Zone Lymphoma

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Case Report: A 69-year-old male with essential tremors on propranolol was admitted for the evaluation of anemia found incidentally during the work-up for fatigue. On examination he had splenomegaly. Laboratory evaluation showed a hemoglobin level of 5.6 g/L, white cell count of 8.5 10^3/uL and platelet count 95 10^3/uL. Hemolytic work-up was positive. Blood film showed large number of small to medium sized RBCs agglutination. WBC series showed leukocytosis with absolute lymphocytosis. Patient was admitted as a case of autoimmune hemolytic anemia. The patient denied having any fever, weight loss, skin rash, joint pain/swelling, recent illness, drenching night sweats, or bleeding form any site. He did not receive any blood transfusion in his life. He was started on methylprednisolone, mycophenolate, and folic acid, and transfused one-unit packed RBCs. His hemoglobin increased to 6.8g/dL from 5.6g/dL after transfusion and to 10.3 g/dL after 1 week of steroids. On further evaluation, samples were collected and incubated at 37°C, then a full blood count was repeated, showing correction of his hematocrit. This strongly suggests that the patient had cold agglutinin antibodies supported by the presence of agglutination in the blood film. Indirect Coombs test (ICT) showed weak positive reaction on initial testing at 0.5+, but after incubation at 4°C for 30 minutes then centrifugation, the repeat ICT was negative, ruling out the presence of alloantibodies. Thermal amplitude was checked at 4°C, 20°C, 30°C, and 37°C and was positive up to 30°C. The titer of the cold agglutinin was 128 at 4°C. Patient underwent bone marrow examination that showed infiltration by a low-grade B-cell neoplasm. Putting the clinical picture with the laboratory findings, the patient was diagnosed with splenic marginal zone lymphoma (SMZL). He started monotherapy rituximab alone and is currently on treatment, doing well, and completely asymptomatic.

Keywords: autoimmune hemolytic anemia, marginal zone lymphoma, cold agglutinin syndrome

RC34

Validity and Reliability of Estimating Lens Dose When Organ Tube Current Modulation is Implemented in CT Head

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Introduction: Organ tube current modulation (OTCM) tools are in place to reduce radiation dose to the lens of the eye for patients undergoing head computed tomography (CT) examination. Growing epidemiological evidence associates cataract formation with doses ≥ 0.5 Gy. In association with this, the need to optimize radiation dose to the lenses is also raised. The purpose of this study was to investigate the efficacy of OTCM and assess the accuracy of commercial organ dose software in estimating the lens of the eye dose when CT head exams were performed using OTCM. **Methods**: Making use of two independent commercial organ dose software, the lens dose of the eye was estimated for a cohort of a total of 28 adult patients. Of which, 28 underwent a standard CT head protocol and 26 underwent a CT head protocol that uses OTCM. For validity, CT dose index phantom and ion-chamber were used to verify the dose reduction at the anterior view of the phantom when the OTCM protocol was used. Ion-chamber measurements were taken at different angles along across the 600 anterior arcs (00, ±100, ±200, and ±300), and at the 900, 1800, and 2700. An unpaired T-Test was used for significant differences. **Results:** Using commercial software, the lens dose generated from the standard CT head protocol versus the CT head using OTCM protocol was found insignificant. OTCM yielded higher lens dose, and no trade-off was made on the acceptability of image quality using the OTCM. Ion-chamber measurement showed significant dose difference at the anterior view and the posterior view, with mean (and range) of 16.71 (16.53-16.73) mGy and 19.56 (19.51-19.63) mGy, respectively. **Conclusion**: OTCM effectively reduces the radiation dose at the anterior view. Commercial organ dose software is not a reliable tool to evaluate the impact of OTCM on the lens dose of the eye.

Keywords: patient safety, lenses dose, CT head, dose reduction, image quality

RC01

Virtual Panels Have a Superior Diagnostic Yield for Inherited Rare Diseases Relative to Static Panels

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Background: Exome- or genome-based panels – also known as slices or virtual panels – are a popular approach which involves comprehensive genomic sequencing while restricting analysis to subsets of genes based on patients' phenotypes. This flexible strategy enables frequent gene updates based on novel disease associations at the same time as reflexing to analyze other genes up to the whole exome or genome. With recent improvements addressing limitations associated with virtual panels, the advantages of this approach relative to static custom-based panels remain to be systematically characterized. **Methods:** Here we perform slice testing on 1014 patients (50.5% females; average age 17 years) referred from multiple pediatric clinics within a single center in the Middle East (83% Arabs). **Results:** Initial analysis uncovered molecular diagnoses for 235 patients for a diagnostic yield of 23% (235/1014). Additional analyses using the exome backbone in the remaining negative cases (N=779) identified clinically significant variants correlating with patients' presentations in genes outside the originally ordered panel for another 35 patients (3.5% or 35/1024), increasing the overall diagnostic yield to 27%. The pathogenic variants underlying the additional cases (13% of all positive cases) were excluded from the original "panel" gene list mainly as result of issues related to panel selection, novel gene-disease associations, phenotype spectrum broadening, or gene lists variability. The additional findings led to changes in clinical management in most patients (94%). **Conclusion**: Our findings support slice testing as an efficient and flexible platform, which facilitates updates to gene lists to achieve high clinical sensitivity and utility.

Keywords: exome slice, virtual panel, variant interpretation, genomic, Middle East

RC170

Virtual Patient Simulation Using Large Language Models

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Introduction: Medical education faces ongoing challenges in providing students with diverse and realistic patient interactions. Virtual patient simulators offer a promising solution, but traditional systems often lack the flexibility and realism needed for effective learning. This study explores the use of large language models (LLMs) to create more dynamic and interactive virtual patient experiences for medical students. **Methods**: We developed a platform that utilizes LLMs to simulate virtual patients with distinct personas and medical conditions. The system was programmed with multiple case scenarios developed by an experienced clinical educator, each representing a unique patient profile with specific learning outcomes relating to communication skills and clinical reasoning. LLMs were prompted to emulate patient behaviors, symptoms, and responses during simulated doctor-patient consultations. Medical students interacted with these virtual patients through a chat-based interface, practicing their communication and diagnostic skills. **Results:** Initial testing demonstrated that the LLM-powered virtual patients exhibited a high degree of realism and variability in their responses. The system successfully represented diverse patient personas across various medical scenarios. Preliminary data suggests proof of concept that such a simulator can be used to deliver virtual patient teaching sessions on effective information gathering for clinical and management reasoning. **Conclusion:** The use of LLMs in virtual patient simulation represents a significant advancement in medical education technology. This approach offers several advantages, including scalability, consistency in learning experiences, and the ability to expose students to rare or complex cases. However, challenges remain in ensuring the accuracy of information provided by the LLMs and in developing appropriate assessment metrics for student performance. Our LLM-powered virtual patient simulator shows promise as an innovative tool for enhancing medical education. By providing students with realistic, diverse, and accessible patient interactions, this technology has the potential to supplement clinical communication and clinical reasoning skills training, alongside traditional clinical placements. Further research is needed to fully evaluate its long-term impact on student learning outcomes and to refine the system based on user feedback and evolving educational needs.

Keywords: virtual simulation, large language models (LLMs), clinical reasoning, medical education

RC296

Weight and Wellness: BMI Levels Among Patients with Migraine Attending Headache Clinic at Rashid Hospital in 2023

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Background: Migraine is a prevalent neurological disorder affecting about 12% of the global population, significantly impairing their quality of life. It is a leading cause of disability and is notably prevalent in the GCC region, including the UAE. Recent research highlights an association between Body Mass Index (BMI) and both the prevalence and severity of migraines, suggesting that obesity may exacerbate migraine symptoms. **Methods:** This study aimed to evaluate BMI levels among migraine patients attending the headache clinic at Rashid Hospital in Dubai from January 1st, 2023 to December 31st, 2023. Adult patients aged 18-65 with confirmed migraine diagnoses and available BMI data were included. Data were extracted from the Dubai Health electronic medical records using Epic SlicerDicer. Descriptive statistics were employed to analyze the distribution of patients across various BMI categories according to the World Health Organization classification. **Results:** Out of 1,337 patients seen at the clinic, 948 were diagnosed with migraine. Among these, 348 patients were categorized as obese (BMI $\geq$ 30 kg/m^2), 307 as overweight (BMI 24.9-29.9 kg/m^2), and 253 as healthy weight (BMI 18.5-24.9 kg/m^2). Only 36 patients were classified as underweight (BMI $<$ 18.5 kg/m^2), and five patients had incomplete BMI records. The data demonstrates a higher prevalence of migraine among those with higher BMI categories. **Conclusion:** The findings indicate a possible significant association between higher BMI and increased prevalence of migraines among patients at Rashid Hospital. Obesity is likely a contributing factor to the frequency and severity of migraines, highlighting the importance of addressing weight management in migraine treatment strategies in the UAE.

Keywords: migraine, BMI, Slicerdicer, UAE

Acknowledgment

The conference organizers would like to express their gratitude to all partners who contributed their efforts to make this scientific event a successful and memorable one. Special thanks to members of the Research and Graduate Studies Department, Mohammed Bin Rashid University of Medicine and Health

Sciences (Ruba Smadi, Alaa Obaid, Fatima Ahli, Diana Kosayeh, and Synthia Renold).

Statement of Ethics

Abstracts submitted to the conference were reviewed by the Conference Scientific Committee and accepted with the expectation that researchers adhered to the highest ethical standards. This includes obtaining requisite approvals from appropriate ethical review boards and securing informed consent from all human subjects participating in the studies.

Conflict of Interest

Abstracts were accepted on the grounds that authors had no conflict of interest.

Artificial Intelligence (AI) Disclosure Statement

AI-Unassisted work.

Funding Sources

No funding.

Data Availability Statement

All abstracts are considered data and are included in the article. Relevant enquiries should be addressed to the corresponding author.