Universiti Kebangsaan Malaysia
The National University of Malaysia

Naratif Baharu UKM
Universiti Watan Kita

Faculty of Medicine
The National University of Malaysia

1st Congress of Medicine and Health 2024

Theme : Medical Advances in Science and Health (MASH)

PROGRAM & ABSTRACT BOOK

22-23 June 2024

Putrajaya Marriott Hotel

Organiser

Faculty of Medicine, UKM

SPI Sekretariat Penyelidikan & Inovasi

Young Scientist & Clinician Network

www.ukm.my/medicine

TABLE OF CONTENT

Message from the Vice-Chancellor

Assalamualaikum wbt.and Greetings.

With immense pleasure, I welcome you to the 1st Congress of Medicine and Health. I am honoured to address this assembly of leading researchers, clinicians, and scholars at the forefront of medical science and innovation.

This congress represents a pioneering effort to integrate the best from the preclinical and clinical worlds, creating a unique platform for collaboration and exchange. By fostering cross-disciplinary dialogues, this conference aims to accelerate the translation of research discoveries into clinical applications, ultimately enhancing patient care and public health.

The 1st Congress of Medicine and Health is more than just a conference; it is a movement towards a more interconnected and holistic approach to medical research and practice. Participants will have the opportunity to engage with ground breaking research, participate in thought-provoking discussions, and form collaborations that will shape the future of medicine.

I am confident that the insights and partnerships developed during this congress will lead to significant advancements in the understanding and treatment of various health conditions. Your presence here underscores the importance of our collective mission to improve health outcomes and advance the field of medicine.

Thank you for being a part of this historic event. I look forward to the inspiring contributions and innovative ideas that will emerge from our discussions in the coming days.

Warm regards,

Prof. **Ts Gs Dato' Dr.** Mohd Ekhwan Hj Toriman
Vice-Chancellor
Universiti Kebangsaan Malaysia

Message from the Deputy Vice-Chancellor
Academic and International Affairs

Assalamualaikum wbt.and Greetings.

I am honoured to welcome you to the inaugural Congress of Medicine and Health, organised by the Faculty of Medicine, Universiti Kebangsaan Malaysia. This ground breaking conference marks a pivotal moment in our ongoing journey to bridge the gap between preclinical research and clinical practice. We are fostering a unique environment for collaboration, innovation, and translational science by bringing together the brightest minds from both realms.

Integrating preclinical and clinical insights is not just a theoretical aspiration it is a necessity for advancing medical knowledge and improving patient care. This congress provides a unique platform for experts to exchange ideas, share cutting-edge research, and forge partnerships that will shape the future of medicine.

As we embark on this exciting endeavour, let us embrace the opportunity to learn from each other, challenge existing paradigms, and develop more impactful translational works. Together, we can transform scientific discoveries into tangible health benefits for communities worldwide.

Thank you for your commitment to excellence and for being a part of this historic event. I look forward to the fruitful discussions and collaborations that will undoubtedly emerge from the 1st Congress of Medicine and Health.

Thank you.

Warm regards,
Professor Dr. Abdul Halim Abdul Gafor
Deputy Vice-Chancellor
Academic and International Affairs
Universiti Kebangsaan Malaysia
Patron 1st Congress of Medicine and Health 2024

Message from the Acting Dean/Deputy Dean (Research & Innovation)

Dear Colleagues and Esteemed Guests,

Welcome to the inaugural 1st Congress of Medicine and Health. It is with great excitement and pride that I extend my warmest greetings to all participants of this landmark event. As the program advisor of this Congress, I am thrilled to witness the convergence of preclinical and clinical experts, united by a shared vision of advancing medical science and improving patient outcomes.

The 1st Congress of Medicine and Health represents a significant step forward in our collective efforts to foster collaboration between these two crucial spheres of research. By creating an avenue for meaningful dialogue and exchange, we aim to break down silos and promote the development of translational works that have a profound and lasting impact on healthcare.

This congress is not just a gathering of minds; it is a catalyst for innovation and a testament to our commitment to pushing the boundaries of what is possible in medicine. Our diverse program includes keynote lectures, panel discussions, and interactive sessions designed to inspire and challenge us to think differently.

As we embark on this journey together, I encourage you to engage deeply, share your insights, and build connections that will pave the way for future breakthroughs. Let us seize this opportunity to make a difference in the world of medicine and health.

Thank you for joining us at this historic event. Your participation is invaluable, and I look forward to the extraordinary advancements that will emerge from our collective efforts.

Warm regards,
Professor Dr. Mohamad Nasir Shafiee
Acting Dean/Deputy Dean (Research & Innovation)
Faculty of Medicine
Universiti Kebangsaan Malaysia
Program Advisor, 1st Congress of Medicine and Health 2024

Message from the Chairperson, 1st Congress of Medicine and Health 2024

Dear Colleagues and Esteemed Guests,

Welcome esteemed colleagues and participants to the inaugural Congress of Medicine and Health, a distinguished gathering of medical professionals, basic science researchers, and key partners.

The 1st Congress of Medicine and Health 2024, held from 22nd – 23rd June 2024 at Marriott Putrajaya Hotel, Malaysia, carries the theme "Medical Advances in Science and Health". This congress, organized by the Faculty of Medicine UKM in collaboration with its Young Scientist & Clinician Network, features both clinical and basic sciences tracks. Thus, whether you are a healthcare professional, a basic science researcher, or simply passionate about shaping the future of healthcare, your presence is not only welcomed but eagerly anticipated. By uniting basic-science researchers, clinician-academicians, and invested key partners, this event promises a rich exchange of insights, practices, and innovations crucial to the progress of medicine and health.

In our rapidly evolving world, the pursuit of excellence in medicine and health has never been more vital. The 1st Congress of Medicine and Health hopes to provide a dynamic platform where individuals from diverse clinical and scientific backgrounds converge to explore advancements in clinical research and basic science innovations. The scientific and organizing committees have worked diligently to offer a comprehensive program meticulously designed to inspire, educate, and empower participants, to ignite positive change in the fields of Medicine and Health with a steadfast commitment to enhancing community health outcomes. Through engaging plenaries, interactive oral presentations, and thought-provoking symposiums, the 1st Congress of Medicine and Health, hopes to be a transformative experience for all.

Warm regards,
Assoc. Professor Dr. Elena Aisha Azizan
Chairperson, 1st Congress of Medicine and Health 2024

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LIST OF SPEAKERS

Speaker	Title
DAY 1	
Prof. Emeritus Dato. Dr. Raymond Azman Ali (Plenary)	A Multidisciplinary Approach to Epilepsy Management Strategies
Dr. Tan Juen Kim	Challenges in Cognitive Disease
Dr. Deborah Chew Chia Hsin	Role of Probiotics on NAFLD
Assoc. Prof. Dr. Law Zhe Kang	Optimizing Radiology Imaging in Stroke Management
Assoc. Prof. Dr. Alfizah Hanafiah	Molecular Insights of Multidrug-Resistant Organisms in GIT
Assoc. Prof. Dr. Chew Kah Teik	Current Landscape of Cancer Treatment: An Imperative for Change
Dr. Mohamad Nurman Yaman	Advancement of Medical Education: from Past to Future
Assoc. Prof. Dr. Hafiza Alauddin	Residual Disease Monitoring in Leukaemia
Dr. Mohd Nasri Awang Besar	Innovative Tools for Medical Education
Prof. Dr. Mukhri Hamdan	Evolution in Reproductive Technologies
Assoc. Prof. Dr. Emelia Osman	Emerging Infectious Diseases: Diagnostic Challenges and Threats
Dr. Nor Haslinda Abd Aziz	Single Cell Analysis in Discerning Solid Cancer and Tumour Microenvironment
Assoc. Prof. Dr. Noor Azimah Muhammad	Physician Role in Patient Sexual and Reproductive Health: Should We be Involved?
Assoc. Prof. Dr. Daniel Law Jia Xian	Involvement of Extracellular Vesicles in Cancer Pathogenesis and Opportunities for Treatment
Prof. Dato' Dr. Razman Jarmin	Guided Mutation Genetic Algorithm Hyper-Heuristic for Capacity Allocation and Master Surgery Scheduling Problem
Prof. Dr. Morris Jonathan Brown	From Normal Adrenal to Aldosterone-Producing Tumours: Single Nucleus Analyses Reveal Novel Cell Types and Trajectories

DAY 2	
Prof. Dato' Dr. Hanafiah Harunarashid (Plenary)	Healthy Hospitals, Healthy Planet: Integrating Sustainability into Healthcare Facilities
Dr. Marjmin Osman	Frontiers in Surgery: The Dawn of A New Surgical Era
Prof. Datuk Sri Dr. Abu Hassan Asari bin Abdullah	Artificial Intelligence Transforming Healthcare Digitalisation – The Sweet and Bitter Prospect
Assoc. Prof. Dr. Azlanudin Azman	Surgical Synergy: Harmonizing Technologies and Skills
Prof. Dr. Azrul Azlan Hamzah, UKM	Microneedles as a method for transdermal topical drug delivery
Dr. Yew Sheng Qian	Optimizing Big Data in Research
Assoc. Prof. Dr. Mohd Fauzi Mh Busra	Conventional Approach to Advanced Bioconvergence Perspective: From ColPatch® to 3D-Bioprinting Technology
Dr. Faiz Daud	Risk Communication: Bridging the Gap between Experts and the Public
Assoc. Prof. Dr. Isa Naina Mohamed	Anti-Dyslipidaemic Properties of Water Soluble Palm Fruit Extract (WSPFE) in Hamsters and Its Translation to Human Clinical Trials

JUNE 22 SATURDAY EVENT SCHEDULE

8:00 AM	**Registration @ Garden Ballroom**			
8:15 AM	**Opening Ceremony**			**Venue: Garden I & II**
9:00 AM	**Plenary Session 1** A Multidisciplinary Approach to Epilepsy Management Strategies **Prof. Emeritus Dato' Dr. Raymond Azman Ali, UiTM** Session Chair: Prof. Datin Dr. Norlinah Mohamed Ibrahim			
9:40 AM	**Symposium 1A: Neuroscience Advancement** Session Chair: Dr. Lim Kuan Yee	**Venue: Garden I & II**	**Symposium 1B: Microbiome and GIT Health** Chair: AP Dr. Tan Jen Kit	**Venue: Garden III**
	1A-1: Challenges in Cognitive Disease **Dr. Tan Juen Kiem, UKM**		**1B-1:** Role of Probiotics on NAFLD **Dr. Deborah Chew Chia Hsin, UKM**	
10:00 AM	**1A-2**: Do Necessity and Concern for Antiepileptic Drugs Affect Medication Adherence? **Nik Liana A Samat (AB40)**		**1B-2**: Prospective Study of Pathogens Causing Acute Gastroenteritis among Children in a Tertiary Hospital in Kuala Lumpur, Malaysia **Rocky Vester Anak Richmond (AB56)**	
10:10 AM	**1A-3**: A Narrative Review on Mobile Health (mHealth) App for Stroke Care and Rehabilitation Intervention for Malaysia **Tuan Siti Mastazliha Long Tuan Kechik (AB68)**		**1B-3**: A Comparison between SNAQ and MNA-SF in the Nutritional Screening of Hospitalized Patients and Dietary Analysis Using Cronometer **Faheem Mustafa (AB25)**	
10:20 AM	**1A-4**: Assessing the Influence of Dry Eye Symptoms on Night Driving Difficulties in Malaysian Adults **Wan Muhammad Hirzi Wan Din (AB29)**		**1B-4**: Metabolomic Studies of Blood Samples from Newborn Infants showed Distinctly Different Profiles between those Receiving Parenteral & Enteral Nutrition **Chuo Sing Kiat (AB63)**	
10:30 AM	**1A-5:** Optimizing Radiology Imaging in Stroke Management **AP Dr. Law Zhe Kang, UKM**		**1B-5:** Molecular Insights of Multidrug-Resistant Organisms in GIT **AP Dr. Alfizah Hanafiah, UKM**	
10:50 AM	**Morning Tea**			
	Moderated Poster Session 1A @ Poster Kiosk 1 Moderator: AP Dr. Aneeza Khairiyah Wan Hamizan		**Moderated Poster Session 1B @ Poster Kiosk 3** Moderator: AP Dr. Daniel Law Jia Xian	
	Symposium 2A: Clinical Oncology Session Chair: Dr. Mohammad Nizam Mokhtar	**Venue: Garden I & II**	**Symposium 2B: Medical Education & Simulation** Session Chair: Dr. Yew Sheng Qian	**Venue: Garden III**
11:10 AM	**2A-1:** Current Landscape of Cancer Treatment: An Imperative for Change **AP Dr. Chew Kah Teik, UKM**		**2B-1:** Advancement of Medical Education: from Past to Future **Dr. Mohamad Nurman Yaman, UKM**	
11:30 AM	**2A-2**: Optimisation of Indirect Enzyme-Linked Immunosorbent Assays for the Quantitative Measurement of Serum Anti-Asparaginase Immunoglobulin G in Paediatric Acute Lymphoblastic Leukaemia Patients. **Tan Yan Qi (AB46)**		**2B-2**: The Impact of Educational Intervention on Reducing Inappropriate Urine Culture Orders: A Tertiary Teaching Hospital Experience **Cheong Xiong Khee (AB3)**	
11:40 AM	**2A-3**: Emerging Role of Transoral Robotic Surgery in Treating HPV-Associated Oropharyngeal Cancer in Malaysia **Khairil Afif Mahmud (AB45)**		**2B-3**: Comparison between Quality of Sleep among Pre-clinical and Clinical Students and its Effects on Academic Performance in University Kebangsaan Malaysia **Teoh Yu Xuan (AB10)**	
11:50 AM	**2A-4**: Exploring the Intricacies of Infratemporal Fossa Via an Endoscopic Assisted Approach **Lum Sai Guan (AB53)**		**2B-4**: Novel Training Simulation Model: A Practical Tool for Laparoscopic-Thoracoscopic Training **Khairoon Nadia (AB22)**	
12:00 PM	**2A-5**: Residual Disease Monitoring in Leukaemia **AP Dr. Hafiza Alauddin, UKM**		**2B-5:** Innovative Tools for Medical Education **Dr. Mohd Nasri Awang Besar, UKM**	
12:20 PM	**Sponsored Lunch Symposium by BioD Medica** Artificial Intelligence: The Brain Behind Multimodality Patch Sensor **Prof. Dr. Patrick Then, Swinburne University of Technology Sarawak**			**Venue: Garden I & II**
12:50 PM	**Lunch @ ZEST**			

JUNE 22 SATURDAY

EVENT SCHEDULE

2:20 PM	**Symposium 3A: Reproductive Medicine** Session Chair: AP Dr. Muhammad Azrai Abu	**Venue: Garden I & II**	**Symposium 3B: Cutting-edge Approaches in Precision Medicine** Session Chair: Dr. Nur Atiqah Haizum Abdullah	**Venue: Garden III**
	3A-1: Evolution in Reproductive Technologies **Prof. Dr. Mukhri Hamdan, UM**		**3B-1:** Emerging Infectious Diseases: Diagnostic Challenges and Threats **AP Dr. Emelia Osman, UKM**	
2:40 PM	**3A-2**: Validation of Malay OCI R among Pregnant Women **Siti Noor Aisyah Ghani (AB14)**		**3B-2:** Single Cell Analysis in Discerning Solid Cancer and Tumour Microenvironment **Dr. Nor Haslinda Abd Aziz, UKM**	
2:50 PM	**3A-3**: In silico Prediction of microRNA Targeted Gene in Human Umbilical Vein Endothelial Cells Exposed to Hypertensive Pregnancies **Nurul Iffah Mohd Isa (AB51)**			
3:00 PM	**3A-4**: Elucidating Ki-67, Caspase-3 and Hematoxylin & Eosin (H&E) in Assessing the Integrity of Ovarian Follicle Following Ovarian Tissue Cryopreservation Via Vitrification Method Among Oncofertility Patient in University Hospital Setting **Kit Kei Tay (AB69)**		**3B-3**: Characterising Adrenal Glands with Functional (Endocrine-Active) Adenomas Using Single-cell RNA Sequencing **Aina Nadheera Abd Rahman (AB12)**	
3:10 PM	**3A-5:** Physician Role in Patient Sexual and Reproductive Health: Should We be Involved? **AP Dr. Noor Azimah Muhammad, UKM**		**3B-4:** Involvement of Extracellular Vesicles in Cancer Pathogenesis and Opportunities for Treatment **AP Dr. Daniel Law Jia Xian, UKM**	
3:30 PM	**Afternoon Tea**			
	Moderated Poster Session 2A @ Poster Kiosk 1 Moderator: Dr. Mohammad Nizam Mokhtar		**Moderated Poster Session 2B @ Poster Kiosk 3** Moderator: Dr. Nurul 'Izzah Ibrahim	
3:50 PM	**CoMedH Clinical Investigator Award Competition** Session Chair: AP Dr. Law Zhe Kang Assistant: Dr. Nur Fatin Nabilah Mohd Sahardi	**Venue: Garden I & II**	**CoMedH Basic Science Investigator Award Competition** Session Chair: AP Dr. Teoh Seong Lin Assistant: Mdm Nur Izyani Razak	**Venue: Garden III**
	CA-1: Efficacy of Ultrasound Imaging and Reporting Breast Diseases in Young First-Degree Relative Women using the Bi-Rads System **Mohana M Elangovin (AB7)**		**CB-1:** Construction of SARS-CoV-2 Spike Protein by Mammalian Expression System **Siti Nur Zawani Rosli (A30)**	
4:00 PM	**CA-2**: Comparing Random Forest and Regularised Logistic Regression Models for 30-day Mortality in Hospitalised Patients: An Analysis within Hospital Standardised Mortality Ratio (HSMR) Framework **Mohd Kamarulariffin Kamarudin (AB19)**		**CB-2**: Development, Optimization and Physicochemical Characterizations of Nanoformulation Hydroxyapatite-Loaded Tocotrienols-rich Fraction for Effective Oral Delivery **Ekram Alias (AB35)**	
4:10 PM	**CA-3**: Clinical Outcome of Transient Ischemic Attack and Mild Stroke Following Hospital Canselor Tuanku Muhriz Fast Track Stroke Protocol **Rathika Rajah (AB42)**		**CB-3**: Elucidation of NPHS2 Mutations in Pediatric Patients with Congenital and Steroid-Resistant Nephrotic Syndrome **Lee Jun Xin (AB44)**	
4:20 PM	**CA-4**: Paediatric intubation box – An innovative modification from the COVID-19 Pandemic **Azrina Zaman (AB48)**		**CB-4**: Effects of Ejiao on Histomorphometric Indices of Subchondral Bone of Knee Joint in Ovariectomised Rats with Osteoarthritis Induced with Monosodium Iodoacetate **Chin Kok Yong (AB64)**	
4:30 PM	**CA-5:** The Efficacy of Elonide Nasal Corticosteroids in Managing Allergic Rhinitis **Hardip Singh Gendeh (AB67)**		**CB-5:** Assessing the Anti-Steatosis Effect of Aurantiochytrium sp. on Metabolic-Associated Fatty Liver Disease (MAFLD) induced-HepG2 Cell Model **Kartthigeen Tamel Selvan (AB66)**	
4:40 PM	**Guest Lecture 1: Innovative Techniques in Healthcare Management** Guided Mutation Genetic Algorithm Hyper-Heuristic for Capacity Allocation and Master Surgery Scheduling Problem **Prof. Dato' Dr. Razman Jarmin, UKM** Session Chair: AP Dr. Adli Ali	**Venue: Garden I & II**	**Guest Lecture 2: Advanced Technologies in Medical Research** From Normal Adrenal to Aldosterone-Producing Tumours: Single Nucleus Analyses Reveal Novel Cell Types and Trajectories **Prof. Dr. Morris Jonathan Brown, Queen Mary University of London** Session Chair: AP Dr. Elena Aisha Azizan	**Venue: Garden III**
5:00 PM	**Networking Session with Queen Mary University of London** Session Chair: AP Dr. Elena Aisha Azizan Co-Chair: AP Dr. Tan Jen Kit			**Venue: Garden III**
5:30 PM	**UKM Young Scientist & Clinician Network Meeting**	**Venue: Garden I & II**	**Networking Session among participants**	**Venue: Garden III**
6:30 PM	**Congress Dinner @ ZEST**			

JUNE 23 SUNDAY

EVENT SCHEDULE

8:00 AM	**Breakfast Symposium by Bayer** The Role of Finerenone: A Pillar Therapy in Cardiorenal Care **AP Dr. Ruslinda Mustafar, UKM**			**Venue: Garden I & II**
8:30 AM	**Plenary Session 2** Healthy Hospitals, Healthy Planet: Integrating Sustainability into Healthcare Facilities **Prof. Dato' Dr. Hanafiah Harunarashid, UKM** Session Chair: AP Dr. Ruslinda Mustafar, UKM			
9:10 AM	**Symposium 4A: Advances in Surgery** Session Chair: Dr. Azrina Syarizah Khutubul Zaman	**Venue: Garden III**	**Guest Lecture 3: Artificial Intelligence in Healthcare System** Artificial Intelligence Transforming Healthcare Digitalisation – The Sweet and Bitter Prospect **Prof. Dato' Sri Dr. Abu Hassan Asaari Abdullah, MMC** Session Chair: AP Dr. Noor Akmal Shareela Ismail	**Venue: Garden I & II**
	4A-1: Frontiers in Surgery: The Dawn of a New Surgical Era **Dr. Marjmin Osman, UKM**			
9:30 AM	**4A-2**: A Prospective Double-blind Randomized Control Trial: Comparison of Surgeon Administered Intraoperative Transverse Abdominis Plane Block and Infiltration of Local Anaesthesia at the Wound Site in Open Inguinal Hernioplasty **Kamalanathan Palaniandy (AB6)**		**Symposium 4B: Translational Medicine** Session Chair: Dr. Zulkarnain Md Idris	**Venue: Garden I & II**
			4B-1: Deciphering the Mutational Burden of Adrenal Glands Harbouring Aldosterone-Producing Lesions Using Single-Cell RNA Sequencing Data **Amnani Aminuddin (AB18)**	
9:40 AM	**4A-3**: Paediatric Laparoscopic Hernia Repair: 16 years' of experience in a single centre **Ahmad Shafiee Bujarimin (AB27)**		**4B-2**: Induction of the Wnt3a β catenin Signalling Pathway by Palm Tocotrienol Protects MC3T3-E1 Osteoblast from Dexamethasone Induced Cellular Apoptosis **Elvy Suhana Mohd Ramli (AB21)**	
9:50 AM	**4A-4**: The Senile Larynx : Role of Injection Laryngoplasty **Nadhirah Mohd Shakri (AB41)**		**4B-3**: Potential Biosensors for Detecting Premature Coronary Artery Disease at the Point of Care **Nanthini Mageswaran (AB33)**	
10:00 AM	**4A-5:** Surgical Synergy: Harmonizing Technologies and Skills **AP Dr. Azlanudin Azman, UKM**		**4B-4:** Microneedles as a method for transdermal topical drug delivery **Prof. Dr. Azrul Azlan Hamzah, UKM**	
10:20 AM	**Morning Tea**			
	Moderated Poster Session 3A @ Poster Kiosk 1 Moderator: Dr. Lim Kuan Yee		Moderated Poster Session 3B @ Poster Kiosk 3 Moderator: Dr. Nur Atiqah Haizum Abdullah	
	Symposium 5A: Community Health Session Chair: AP Dr. Aneeza Khairiyah Wan Hamizan	**Venue: Garden III**	**Symposium 5B: Novel Interventional Approach in Medicine** Session Chair: Dr. Nurul 'Izzah Ibrahim	**Venue: Garden I & II**
10:40 AM	**5A-1:** Optimizing Big Data in Research **Dr. Yew Sheng Qian, UKM**		**5B-1:** Conventional Approach to Advanced Bioconvergence Perspective: From ColPatch® to 3D-Bioprinting Technology **AP Dr. Mohd Fauzi Mh Busra, UKM**	
11:00 AM	**5A-2**: The Effectiveness of a Parent-Teacher Mental Health Aid Module to Improve Mental Health Literacy among Adolescents' Gatekeepers: A Pilot Study **Lei Voon Ng (AB17)**		**5B-2**: Tailoring Parenteral Nutrition for Adult Patients at Risk of Refeeding Syndrome: A Formulation Development Strategy **Nur Aina Abu Hassan Shaari (AB37)**	
11:10 AM	**5A-3**: Knowledge, Attitude, and Practice of Medical Ethics Amongst Paediatric Surgeons and Trainees in Malaysia **Salehah Tahkin (AB23)**		**5B-3**: Primary Aldosteronism: Molecular Medicine Meets Public Health **AP Dr. Elena Aisha Azizan, UKM**	
11:20 AM	**5A-4**: Awareness and Attitudes Toward Organ Donation in Medical Staff at Queen Elizabeth Hospital, Sabah **Johari Daud Makajil (AB55)**			
11:30 AM	**5A-5**: Risk Communication: Bridging the Gap between Experts and the Public **Dr. Faiz Daud, UKM**		**5B-4**: Anti-Dyslipidaemic Properties of Water Soluble Palm Fruit Extract (WSPFE) in Hamsters and Its Translation to Human Clinical Trials **AP Dr. Isa Naina Mohamed, UKM**	
12:00 PM	**Closing Ceremony @ Garden 1 & II**			
12:30 PM	**Lunch @ ZEST**			
2:00 PM	**End of Congress**			

List of Posters for Competition

Slot No	Abstract No	Presenter	Title	Time	Venue
Clinical Track					
Moderated Poster Session 1A, 22nd June 2024 (Saturday)					
MP1A-1	AB2	Shuwahida Shuib, IMR	Exploring Neurofilament Light Chain as a Diagnostic Tool in Multiple Sclerosis: Insights from Serum Analysis	10:50 AM	Poster Kiosk 1
MP1A-2	AB26	Faheem Mustafa, UNISA	The Association of Power Napping with Obesity and Dietary Habits Among the Age Group of 6-18 Years	10:55 AM	
MP1A-3	AB57	Rocky Vester Anak Richmond, UKM	Evaluation of Agreement between Operon Simple Rotavirus (RoV) Test and JusChek Combo Rapid Test Cassette	11:00 AM	
Moderated Poster Session 2A, 22nd June 2024 (Saturday)					
MP2A-1	AB5	Siti Zubaidah Abdul Karib, UKM	Assessment of Health Symptoms of Indoor Fungal Exposure in Simulation Laboratories, Preclinical Building, Faculty of Medicine, University Kebangsaan Malaysia	3:30 PM	Poster Kiosk 1
MP2A-2	AB34	Zulkarnain Md Idris, UKM	Serological Evaluation of Risk Factors for Exposure to Human Malaria in a Pre- elimination Setting in Peninsular Malaysia	3:35 PM	
MP2A-3	AB52	Anisah Nordin, UKM	Prevalence of Acanthamoeba infections in Corneal Scrapings: A Retrospective Analysis of Samples from Hospital Canselor Tuanku Muhriz.	3:40 PM	
Moderated Poster Session 3A, 23rd June 2024 (Sunday)					
MP3A-1	AB32	Chew Cheng Hoon, IMR	Visualising Emergency Department Patient Flow: Insights from Constructivist Grounded Theory	10:20 AM	Poster Kiosk 1
MP3A-2	AB31	Salehah Tahkin, UKM	Successful Laparoscopic Repair Duodenal Atresia In MCDA Twins	10:25 AM	
MP3A-3	AB61	Lum Sai Guan, UKM	Huge Facial Artery Aneurysm: Unveiling the Time Bomb Within	10:30 AM	

Slot No	Abstract No	Presenter	Title	Time	Venue
Basic Science Track					
Moderated Poster Session 1B, 22nd June 2024 (Saturday)					
MP1B-1	AB47	Rizwana Jahan Jawahar Ali, UKM	Modulatory Effects of Ginger Extract on Ageing and Cognitive Improvement in Animal Model	10:50 AM	Poster Kiosk 3
MP1B-2	AB62	Norliza Muhammad, UKM	Exploring Systemic Photoprotection: The Efficacy of Oral Centella Asiatica Supplementation Against UVB-Induced Skin Damage in Mice	10:55 AM	
MP1B-3	AB65	Wenjian Zhao, UKM	Effects of Ejiao on Body Weight, Joint Width and Grip Strength of Ovariectomised Female Rats with Osteoarthritis Induced with Monosodium Iodoacetate	11:00 AM	
Moderated Poster Session 2B, 22nd June 2024 (Saturday)					
MP2B-1	AB13	Ainur Yusniza Yusof, IMR	Studies on the Seropositive Pemphigus Disease Autoantibodies in Malaysia	3:30 PM	Poster Kiosk 3
MP2B-2	AB16	Vithyaah Paramesparan, UKM	Morphometry and Internal Structure of Ancient Bone Found in Gua Chawan, Malaysia	3:35 PM	
MP2B-3	AB43	Noornatisha Salleh, IMR	Biochemical and Clinical Characterisation of Tyrosinemia Type I in Malaysia: Our 7-Year Experience	3:40 PM	
Moderated Poster Session 3B, 2rd June 2024 (Sunday)					
MP3B-1	AB9	Yogeswaran Lokanathan, UKM	Wharton's Jelly Mesenchymal Stem Cells (WJMSCs) Derived Small Extracellular Vesicles (sEVs): A preclinical safety study	10:20 AM	Poster Kiosk 3
MP3B-2	AB15	Siti Hanisah Mohd Fuad	The Effect of Immobilized Papain Treatment on Antioxidant Properties on Edible Bird's Nest (EBN)	10:25 AM	
MP3B-3	AB49	Nuraqila Mohd Murshid	Bioinformatics and Data Science Approaches in Discovering Potential Biomarkers in Focal Epilepsy: A Scoping Review Protocol	10:30 AM	

List of Posters for Non-competition

Abstract No	Presenter	Affiliation	Title	Venue
Clinical Track				
AB4	Izzad Emir Ismail	UKM	Early Switch of Intravenous to Oral Antibiotics in Uncomplicated Enterobacteriaceae Bacteremia – A Single Centre Experience	Poster Kiosk 2
AB8	Azlanudin Azman	UKM	Giant Xanthogranulomatous Cholecystitis with Gastric Outlet Obstruction Mimicking Gallbladder Cancer	
AB20	Tham Jin Ke	UKM	Practices and Barriers of Irritable Bowel Syndrome Patients in Implementing the Low FODMAP Diet for Symptoms Management: A Qualitative Study	
AB38	Ahmad Firdaus Habib Rahman	MOH	Traversing the Parapharyngeal Domain; A Rare Case of a Basal Cell Adenoma in a Parapharyngeal Space Mass Presentation	
AB39	Rathika Rajah	UKM	CYP2C19 Metabolizer Status Among Stroke Patients in a Malaysian Stroke Centre	
AB54	Lum Sai Guan	UKM	A Rare Case of Tongue Invasive Fungal Infection in an Immunocompetent Patient	
AB59	Lum Sai Guan	UKM	Unveiling Leptospirosis Masquerading as Acute Tonsillitis: A Diagnostic Challenge	
AB70	Norsyariza Razak	UKM	Detection Of Subclinical Keratoconus Using Combined Multimodal Imaging of Corneal Tomography, Biomechanics and Pachymetry	
Basic Science Track				
AB50	Tan Jen Kit	UKM	Effects of Ginger (Zingiber officinale Roscoe) Extract on Hepatic Lipidomic Profiles of Aged Rats	Poster Kiosk 2
AB58	Faeezah Abdul Latif	UKM	Functional Role of Notch4 in Primary Aldosteronism	
AB60	Ng Chin Tat	UKM	Assessment of Renin-Angiotensin-Aldosterone System (RAAS) Modulation on Angiotensin-Converting Enzyme 2 (ACE2) Expression in Human Primary Adrenal Cells and Cell Lines	
AB71	Nur Atiqah Haizum Abdullah	UKM	Phoenixin in Metabolic Processes: Insights from a Systematic Scoping Review	

List of Plenary Speakers

Presenter	Title	Time
	22nd June 2024 (Saturday)	
Prof. Emeritus Dato' Dr. Raymond Azman Ali	A Multidisciplinary Approach to Epilepsy Management Strategies	9.00 am
	23rd June 2024 (Sunday)	
Prof. Dato' Dr Hanafiah Harunarashid	Healthy Hospitals, Healthy Planet: Integrating Sustainability into Healthcare Facilities	8.30 am

List of Guest Lectures

Presenter	Title	Time
	22nd June 2024 (Saturday)	
Prof. Dato' Dr. Razman Jarmin	Guided Mutation Genetic Algorithm Hyper-Heuristic for Capacity Allocation and Master Surgery Scheduling Problem	4.40 pm
Prof. Dr. Morris Jonathan Brown	From Normal Adrenal to Aldosterone-Producing Tumours: Single Nucleus Analyses Reveal Novel Cell Types and Trajectories	
	23rd June 2024 (Sunday)	
Prof. Dato' Sri Dr. Abu Hassan Asaari Abdullah	Artificial Intelligence in Healthcare System	9.10 am

List of Clinical Invited Speakers

Slot No	Presenter	Title	Time
22nd June 2024 (Saturday)			
1A-1	Dr. Tan Juen Kim	Challenges in Cognitive Disease	9.40 am
1A-5	AP Dr. Law Zhe Kang	Optimizing Radiology Imaging in Stroke Management	10.30 am
2A-1	AP Dr Chew Kah Teik	Current Landscape of Cancer Treatment: An Imperative for Change	11.10 am
2A-5	AP Dr. Hafiza Alauddin	Residual Disease Monitoring in Leukaemia	12.00 pm
3A-1	Prof. Dr. Mukhri Hamdan	Evolution in Reproductive Technologies	2.20 pm
3A-5	AP Dr. Noor Azimah Muhammad	Physician Role in Patient Sexual and Reproductive Health: Should We be Involved?	3.10 pm
23rd June 2024 (Sunday)			
4A-1	Dr. Marjmin Osman	Frontiers in Surgery: The Dawn of a New Surgical Era	9.10 am
4A-5	AP Dr. Azlanudin Azman	Surgical Synergy: Harmonizing Technologies and Skills	10.00 am,
5A-1	Dr Yew Sheng Qian	Optimizing Big Data in Research	10.40 am
5A-5	Dr. Faiz Daud	Risk Communication: Bridging the Gap between Experts and the Public	11.30 am

List of Basic Science Invited Speakers

Slot No	Presenter	Title	Time
22nd June 2024 (Saturday)			
1B-1	Dr. Deborah Chew Chia Hsin	Role of Probiotics on NAFLD	9.40 am
1B-5	AP Dr. Alfizah Hanafiah	Molecular Insights of Multidrug-Resistant Organisms in GIT	10.30 am
2B-1	Dr. Mohamad Nurman Yaman	Advancement of Medical Education: from Past to Future	11.10 am
2B-5	Dr. Mohd Nasri Awang Besar	Innovative Tools for Medical Education	12.00 pm
3B-1	AP Dr. Emelia Osman	Emerging Infectious Diseases: Diagnostic Challenges and Threats	2.20 pm
3B-2	Dr. Nor Haslinda Abd Aziz,	Single Cell Analysis in Discerning Solid Cancer and Tumour Microenvironment	2.40 pm
3B-5	AP Dr. Daniel Law Jia Xian	Involvement of Extracellular Vesicles in Cancer Pathogenesis and Opportunities for Treatment	3.10 pm
23rd June 2024 (Sunday)			
4B-4	Prof. Dr. Azrul Azlan Hamzah	Microneedles as a method for transdermal topical drug delivery	10.00 am
5B-1	AP Dr. Mohd Fauzi Mh Busra	Conventional Approach to Advanced Bioconvergence Perspective: From ColPatch® to 3D-Bioprinting Technology	10.40 am
5B-2	AP Dr. Isa Naina Mohamed	Anti-Dyslipidaemic Properties of Water Soluble Palm Fruit Extract (WSPFE) in Hamsters and Its Translation to Human Clinical Trials	11.30 am

PLENARY ABSTRACT

A Multidisciplinary Approach to Epilepsy Management Strategies

Raymond Azman Ali

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Abstract

Epilepsy affects 7.8 per 1000 persons in Malaysia. Epilepsy is the commonest neurological condition in pregnancy requiring continuous treatment. It leads to physical disabilities from injury, unemployment, social isolation, depression, and death from status epilepticus and sudden unexpected death in epilepsy. Complete freedom from seizures is the goal of management; this is orchestrated by the epileptologist-neurologist who is responsible for establishing the cause of the epilepsy, the interpretation of the EEG and video-EEG recording and overall management of the patient. Other key personnel are the radiologist, EEG technologist, psychologist, neuropsychiatrist, neurosurgeon and dietitian. Often, a geneticist is required for family counseling for the genetic epilepsies. Malformations of cortical development or neuronal migration disorders are frequently undiagnosed, and may be the cause of drug-resistant epilepsy (DRE). The advent of high-resolution multiplanar MRI to diagnose such conditions has reduced the number of cryptogenic epilepsies significantly. Potentially serious skin reactions to certain antiseizure medications can avoided by testing for HLA-B*1502, which is prevalent in Southeast Asia. In patients with DRE, non-pharmacological measures, including ketogenic diet, vagal nerve stimulation, deep brain stimulation and resective surgery must be offered earlier than later to avoid the risk of postsurgical depression and suicide. These non-pharmacological methods are effective for most, if not all, seizure types and all age groups. A carefully planned multidisciplinary presurgical evaluation is aimed at improving seizure outcome and reducing morbidity and mortality.

Keywords: Epilepsy; multidisciplinary management; neuronal migration disorders; non-pharmacological methods

PLENARY ABSTRACT

Healthy Hospitals, Healthy Planet: Integrating Sustainability into Healthcare Facilities

Prof. Dato' Dr Hanafiah Harunarashid[1,2]

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Abstract

The degradation of the natural environment in this new epoch has now resulted in significant risks of substantial health effects to the global population, sustained by population growth, highly inequitable, inefficient resource consumption, and counter intuitive technological development. However, the idea of planetary health as an alternative theme to replace the dominant traditional narrative foundation of today's healthcare system has yet to catch on despite being introduced nearly a decade ago. Moving forward, we should reflect on how our current practice fails to address today's challenges, the kind of changes we need to do and more importantly decide on taking the necessary steps to safeguard the future for generations to come. As a nation, it is important for our national healthcare system to be technologically self-reliant, apart from having the resilience and capacity to respond to future threats. How this is to be achieved realistically will be discussed, along with a peak of what is likely to come in the development of UKM Health Technopolis.

Keywords: Healthcare; healthcare system; technopolis; health technology

Guest Lecture 1

Guided Mutation Genetic Algorithm Hyper-Heuristic for Capacity Allocation and Master Surgery Scheduling Problem

Razman Jarmin

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The capacity allocation problem involves distributing operating theatre (OT) capacity among surgery groups, whereas the Master Surgery Scheduling Problem (MSSP) assigns these groups to specific OTs and days, forming a master plan. Poor plans may cause imbalanced patient waiting times among surgery groups. Besides, a good plan should meet assignment preferences and resource-sharing limitations. Various techniques have been introduced to produce high-quality MSSP solutions, including hyper-heuristics. One such algorithm is the Genetic Algorithm Hyper-Heuristic (GAHH), a robust population-based algorithm for various optimization problems. It utilizes genetic operators, including mutation, to enhance performance. However, existing mutation operators rely on random selection, leading to less systematic searches and potentially overlooking important changes. Therefore, this study proposes a guided mutation that leverages search history to apply informed changes, directing the search toward promising solutions. It is conducted as a case study for Hospital Canselor Tuanku Muhriz. A problem formulation incorporating novel objectives for consecutive day assignments and surgical equipment sharing, crucial for real-world applicability, is presented to guide solution generation. A saturation degree-based constructive heuristic integrating objective value in event sorting, which can ensure feasibility while maximizing quality, is introduced to generate initial solutions. GAHH with guided mutation (GAHH-GMX) is proposed, employing effective hyper-heuristic component implementation methods identified through empirical analysis. Guided mutation (GMX) applies informed changes through dynamic multi-armed bandit and Markov decision process to adapt heuristic selection for mutation to different search states. Multi-armed bandit approaches are proven effective in high-level strategy and genetic operator selection, whereas Markov decision process can ensure decisions reflect the current state. GAHH-GMX is evaluated for generality using the HyFlex framework and adapted to real-world problems through the case study. Comparisons indicate that guided mutation produces high-quality solutions more consistently than random mutation. GAHH-GMX improves waiting time variability, assignment preference fulfillment, and resource-sharing management compared to a manual plan. In conclusion, GAHH-GMX has produced good solutions for capacity allocation and MSSP, providing a systematic search for enhanced quality. Future studies can enhance its performance by expanding search state considerations to

include fitness changes and execution time, enabling a more effective representation of heuristic search performance trends.

Guest Lecture 2

From Normal Adrenal To Aldosterone- Producing Tumors: Single-Nucleus Analyses Reveal Novel Cell Types And Trajectories

Kate Laycock, Claudia P. Cabrera, Eva Wozniak, Charles A. Mein, Elena A.B. Azizan, Elisabeth Ng, Xilin Wu, Emily Goodchild, James Macfarlane, Mark Gurnell, William M. Drake, Morris J. Brown

Clinical Pharmacology & Precision Medicine, William Harvey Research Institute, Queen Mary University of London, UK.

Background

Primary Aldosteronism (PA) is the commonest curable cause of hypertension, when its cause is a unilateral adrenal adenoma. However, in a recent prospective trial, adrenalectomy achieved complete cure of hypertension in only 30% of 78 patients with unilateral primary aldosteronism (PA) (Wu et al. Nat Med 2023 29:190-202). Most of the apparently unilateral aldosterone-producing adenomas (APA) have one of ~six somatic mutations that cause constitutive aldosterone production, of which the commonest are in ion channels regulating K^+ and Ca^{2+}. We have now compared influence of common APA genotypes on cure rates at 2 years after adrenalectomy, and sought different cells of origin to explain the result.

Methods

Home BP, plasma aldosterone and renin were re-measured 2 years after surgery. APA genotype and transcriptome were analysed by RNAseq. Single-nucleus (Sn) RNAs from 17 fresh-frozen adrenals and 9 APAs (3 each with *KCNJ5* or *CACNA1D* mutation), were quantified by 10x Chromium, and cells with mutations identified by targeted amplicon analysis. Unusual cells were confirmed by immunofluorescence (IF), and their origin sought in published datasets for other tissues.

Results

14/18 patients with *KCNJ5*-mutation, but 0/20 with *CACNA1D,* had BP <135/85 mmHg off treatment at 2 years (p=0.03, logistic regression on genotype, age, gender, ethnicity). Biochemical success rate was also lower in *CACNA1D*-mutant patients. The most upregulated transcript in *CACNAID* vs *KCNJ5*-mutant APAs was the endothelial-cell gene *CCM2L* (33-fold, $p=10^{-26}$), followed by neuronal and adrenomedullary genes e.g. *PTPRZ1, SLC35F1, UNC79*, by 13-17-fold, $p=10^{-10-12}$). Transcripts of these genes, in Sn analyses of 85203 nuclei from 17 non-tumour samples, clustered in *CYP11B2*-expressing cells, along with genes

characteristic of aldosterone-producing micronodules (APM). In Sn analysis of 9 APAs, *CCM2L* was highly differentiated in *CYP11B2*$^{+}$ cells from 3 *CACNA1D*- vs 3 *KCNJ5*-mutants ($p=10^{-106}$) along with *PTPRZ1* ($p=10^{-232}$), *SLC35F1* ($p=0$) and many other neuronal/medullary transcripts. UMAPs of APAs and adjacent adrenal both revealed a cluster of hybrid cells expressing *CCM2L* or other endothelial genes, plus *CYP11B2* and other zona glomerulosa (ZG) or APM-selective transcripts. The proportion of hybrid cells was higher in *CACNA1D*-mutant APAs (236/803) and adjacent adrenal (37/946) than *KCNJ5*-mutant (101/954) and adjacent tissue (8/766). By contrast, *CYP11B2*$^{+}$ cells from *KCNJ5*-mutant APAs were enriched for transcripts in the *CYP11B2*$^{-}$ ZG-cell cluster of adjacent adrenal. Immunofluorescence confirmed cells expressing *CYP11B2* and endothelial transcripts, and spontaneous fusion of these cell-types was observed in co-culture experiments. Mining of GTEX and Human Cell Atlas led to a cluster of *NR5A1*$^{+}$*KCNJ5*$^{+}$*CCM2L*$^{+}$ endothelial cells in spleen as likely source of CCM2L^{+} cells (Science 2022 376, eabl4896).

Conclusion

Somatic genotype influences long-term outcome after adrenalectomy for PA, reflecting origin of *CACNA1D*-, but not *KCNJ5*-, mutant APAs from APMs. Bilateral APMs have been inferred from their occurrence in most PA adrenals (Azizan et al. Nat Rev Neph 2023 19:788). This is supported by our finding of *CCM2L*$^{+}$*CYP11B2*$^{+}$ hybrid cells, with a plausible circulatory origin from spleen.

Abstract of Clinical Invited Speakers

1A-1

Challenges in Cognitive Disease

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Abstract

Cognition relates to all forms of knowing and awareness, such as perceiving, conceiving, remembering, reasoning, judging, imagining, and problem-solving. It encompasses several domains, such as attention, memory, language, and impairment in any domain results in cognitive deficit. The aetiology of cognitive diseases is wide-ranging and often multifactorial, making diagnosis and management challenging. Coupled with a lack of awareness, these diseases profoundly impact patients' quality of life and impose significant burdens on caregivers and economies globally. In spite of its negative impact, there is a lack of treatment options for irreversible causes of cognitive diseases, which are rising in prevalence globally. This issue is further compounded in developing nations, where access to advanced diagnostic tools and novel therapeutic agents is limited. Despite advancements in research, these benefits may not reach regions lagging behind in healthcare infrastructure and resources. We explore what challenges we face as a developing nation and how a comprehensive approach involving healthcare personnel, policy-makers, and the general public can work cohesively together to enhance dementia care to restore the quality of life of those afflicted.

Keywords: Cognition; cognitive impairment; dementia.

1A-5

Optimising radiological imaging in stroke management

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Abstract

Neuroimaging plays a critical role in assessment of treatment in acute ischaemic stroke and intracerebral haemorrhage. Advanced neuroimaging include the use of multimodal CT brain (non-contrasted CT, CT angiography and CT perfusion) and MRI had been used in identifying patients who may benefit from intravenous thrombolysis and mechanical thrombectomy.

In this seminar, we will review the randomised controlled trials that utilise advanced neuroimaging to select patients for extended window thrombolysis and thrombectomy, including CT perfusion mismatch and MRI DWI-FLAIR mismatch. In addition, we will also explore the role of collateral circulation assessment in deciding for reperfusion therapy. The using of CT angiography for assessing intracranial atherosclerotic disease will also be discussed.

In the second part of the seminar, we will explore the role of non-contrast CT brain, CT angiography, digital subtraction angiography and MRI in the diagnosis and prognostication of intracerebral haemorrhage. In addition, management decisions such as restarting antithrombotic therapy depend heavily on neuroimaging assessments.

The future and evolution of neuroimaging in stroke involves the use of precision quantitative imaging with the help of artificial intelligence.

2A-1

Current Landscape of Cancer Treatment: An Imperative for Change

Chew Kah Teik[1,2]

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Abstract

The landscape of cancer treatment, particularly concerning gynaecological malignancies therapy, finds itself at a pivotal crossroads, necessitating a comprehensive reassessment and restructuring. Despite considerable strides in therapeutic approaches such as surgery, chemotherapy, radiation therapy, and immunotherapy, cancer continues to pose a significant global health threat. In Malaysia, while there have been notable advancements in managing cervical malignancies, there has been a concerning rise in the incidence of ovarian and endometrial cancers. Moreover, there is a significant shift in the sociodemographic profile of women diagnosed with cancer, indicating evolving patterns that warrant specific strategies to be taken. Addressing these challenges requires a multidisciplinary approach aimed at enhancing disease management and improving outcomes for affected women. This entails not only refining existing treatment modalities but also incorporating novel strategies tailored to the specific needs and circumstances of patients. Emphasizing early detection through screening programs, expanding access to advanced treatments, and prioritizing comprehensive care that considers the socio-economic factors impacting women's health are paramount. Furthermore, there is a urgent need to invest in research to uncover the underlying mechanisms driving gynaecological malignancies and to develop targeted therapies that offer more effective and personalized treatment options. Additionally, efforts to raise awareness, promote preventive measures, and provide psychosocial support are integral components of a holistic approach to combating these cancers. In conclusion, confronting the challenges posed by gynaecological malignancies demands a concerted effort to adapt and innovate in the face of evolving trends and demographics.

Keywords: Gynaecological cancers, immunotherapy, targeted therapy

2A-5

Residual Disease Monitoring In Leukaemia

A/P Dr Hafiza Alauddin

Department of Pathology, Faculty of Medicine, UKM

Measurable/minimal residual disease (MRD) is defined as persistence of leukaemic cells post chemotherapy below conventional cytomorphologic detection level. MRD below certain defined threshold is associated with longer progression-free survival and overall survival in patients with leukaemia. Treatment decisions and prognosis of leukaemia patients are dependent on disease status which requires assessment of MRD amongst others. Several techniques are employed for the MRD assessments including multi-parameter flow cytometry (MFC), quantitative reat-time PCR (qPCR) and next generation sequencing (NGS).

The first and most widely adopted MRD-tailored treatment protocol is exemplified by the more than 20-year success story of chronic myeloid leukaemia (CML). A specific time interval BCR::ABL1 fusion gene is monitored at three monthly intervals within the first year of tyrosine kinase inhibitor (TKI) and a longer interval then on, precisely tailoring each patient's response. Detection of leukaemic cells carrying the fusion gene can either be achieved by molecular or cytogenetic technique, but qPCR molecular tests are the current gold standard due to its high sensitivity, less laborious techniques, availability of reference materials and standardized international reference scale qPCR reaches sensitivity up to $10^{-4.5}$ to 10^{-5} levels, termed deep molecular response (DMR) for CML. The advances in CML management have reached its peak by currently allowing patients who had attained a durable DMR to be taken off TKI altogether, although clinical trials are still ongoing for longer term outcomes of these patient cohort. In acute myeloid leukaemia (AML), the role of MRD is still evolving as a clinical decision support tool with more effort is required for standardization of laboratory techniques. MRD role in AML is currently more applicable towards the intermediate risk group by guiding the decision to for HSCT, while its role is less apparent in the adverse prognosis group. Intermediate risk MRD negative AML patients do well with autoHSCT, avoiding the side effects of toxic chemotherapeutic protocols associated with alloHSCT. While the MRD positive group went to receive alloHSCT with the clinical outcomes of both groups were found to be comparable. MRD is a strong predictor of patient outcomes and risk of relapse in paediatrics and adult ALL. Incorporation of MRD in ALL management is almost a universal practice as up to 93% of paediatrics ALL and 53% adult ALL practices are adopting MRD-based treatment approach. In both patient groups, MRD was uniformly associated with improved event free survival and overall survival. Most of the protocols rely on MFC or NGS as a platform for monitoring. EuroFlow group has produced a standardized 8-colour MRD kit currently commercially available for clinical use with sensitivity reaching 10^{-5}. Advanced work exploring into ultrasensitive ALL MRD detection using NGS, with sensitivity

of 10^{-6}, is underway. At our haematology laboratory at HPKK, we had successfully established an in-house validated B-ALL MRD MFC assay with 10^{-5} sensitivity limit and has offered the assay for clinical use since December 2022. To date the rate of MRD positivity in our patient cohort is about 30%. We hope to expand MRD assays for T-ALL, AML as well as plasma cell myeloma in our haematology laboratories and strive to upgrade the standards of care for leukaemia patients towards precision-medicine.

3A-1

Evolution in Reproductive Technologies

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Abstract

Reproductive technology has undergone significant evolution globally and in Malaysia, driven by advancements in medical science and technology. Globally, the journey began with the development of in vitro fertilization (IVF) in the late 20th century, which revolutionized infertility treatment by allowing conception outside the body. Over time, IVF techniques have become more sophisticated, with the introduction of intracytoplasmic sperm injection (ICSI), preimplantation genetic testing (PGT), and embryo cryopreservation, enhancing success rates and expanding options for couples facing fertility challenges. Moreover, the emergence of third-party reproduction, including egg and sperm donation as well as gestational surrogacy, has provided alternative pathways to parenthood. In Malaysia, while reproductive technology adoption initially lagged due to cultural and regulatory factors, the past two decades have witnessed a notable shift. IVF and related procedures have become more widely available, aided by the establishment of specialized fertility clinics and supportive governmental policies. Additionally, Malaysia has seen an increase in awareness and acceptance of reproductive assistance, leading to greater utilization of these technologies. However, ethical, and legal considerations continue to shape the landscape, with ongoing debates surrounding issues such as embryo storage limits, genetic screening, and surrogacy arrangements. Overall, the evolution of reproductive technology both globally and in Malaysia reflects a dynamic interplay between scientific innovation, cultural norms, and regulatory frameworks, continually reshaping the possibilities and challenges of assisted reproduction.

Keywords: IVF; ICSI; IUI; PGT; ART

3A-5

Physician Role in Patient Sexual and Reproductive Health: Should We Be Involved?

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Abstract

The involvement of physicians in addressing patient sexual and reproductive health issues is a complex and sensitive matter that requires careful consideration and ethical awareness. On the other hand, understanding a patient's sexual history is crucial for providing comprehensive healthcare, as it can impact diagnosis, treatment, and overall well-being of the patient. This lecture highlights the prevalence of sexual misconduct and abuse in society underscoring the need for healthcare professionals to address these issues sensitively and effectively. Balancing the rights of physicians to inquire about sexual health concerns with the rights of patients to privacy and autonomy is essential in maintaining a respectful and trusting doctor-patient relationship. The importance of upholding the core ethical values cannot be neglected and will be further elaborated in this lecture. In conclusion, while the involvement of physicians in patient sexual and reproductive health is important for holistic care, it must be approached with sensitivity, respect for patient autonomy, and adherence to ethical guidelines. By recognizing the significance of sexual history, addressing issues of misconduct and abuse, and upholding patient confidentiality, healthcare professionals can play a valuable role in promoting overall well-being and quality healthcare delivery.

Keywords: Sexual history; Physician role; Reproductive Health; Ethics; Sexual Risks

4A-1

Frontiers in Surgery: The Dawn of a New Surgical Era

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Abstract

The field of surgery is experiencing a period of transformation driven by rapid advancements in various technologies. These technological innovations are set to have a significant impact on the way surgeries are performed, the types of patients who can undergo surgical interventions, and the training and education of future surgeons. They will enhance surgical practices with robotic surgery, 3D printing technology, and new imaging methods. The introduction of artificial intelligence in surgical practices is also reshaping the field, with the potential to assist surgeons in decision-making, preoperative planning, and intraoperative guidance. Collaboration between experts is no longer restricted by distance, and patients' consultations are no longer confined to clinical settings. Thus, these technologies will impact the delivery of surgeries, patient selection, and training methods. However, the risks and potential threats in data regulation, storage, and monitoring, particularly in terms of data safety need to consider. As these technological advancements continue to evolve, future surgeons must adapt to and embrace these innovations to stay at the forefront of the field. Integrating these technologies into surgical training and practices promises to improve patient care, expand the scope of surgical interventions, and ultimately advance the field of surgery as a whole.

Keywords: Surgical technologies; surgical innovation; surgical training.

4A-5

Surgical Synergy: Harmonizing Technologies and Skills

A/P Dr Azlanudin Azman

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Harmonizing technology and skills are essential in modern surgical practice, where the convergence of advanced technologies and refined surgical skills has become paramount. This presentation will delve into the synergistic relationship between technological innovations, such as robotic assistance, imaging modalities, and augmented reality with the expertise of surgical teams. Through a comprehensive review of current literature and case studies, it discusses how this harmonization enhances procedural precision, patient safety, and clinical outcomes. Emphasizing the collaborative efforts between surgeons, engineers, and medical professionals, it will also underscore the transformative potential of integrating cutting-edge technologies with established surgical practices, heralding a new era of surgical excellence and patient care

5A-1

5A-1: Optimizing Big Data in Research

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Abstract

The increasing prominence of Big Data and Artificial Intelligence (AI) is significantly shaping the landscape of public health, offering promising avenues for surveillance, diagnostics, measurement, learning, and evaluation. A growing number of public health programs are transitioning to digital platforms, operating continuously and reaching diverse user groups. This shift results in the generation of extensive datasets characterized by complex and varied formats, demanding specialized methods, analytical tools, and privacy frameworks for effective management. As the field embraces digitalization, the challenges posed by large, diverse datasets underscore the need for tailored approaches while maintaining the precision inherent in traditional methods. As such, this presentation will offer a comprehensive overview of the pivotal role played by Big Data and AI in public health. It will delve into the potential opportunities, obstacles, and ethical considerations associated with their integration. Additionally, the talk will take a detailed exploration into several digital analytics toolkits, providing insights into the tools and methodologies essential for navigating the complexities of digital health data.

5A-5

Risk Communication: Bridging the Gap between Experts and the Public

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Abstract

Risk communication is one of the critical components in management of crisis and emergencies such as the global COVID-19 pandemic. The objective is to highlight the effective process of risk communication that was implemented in a teaching hospital in Malaysia. Messages from the hospital administrators to the healthcare staff were examined. We mapped out the timeline of the risk communication process in Hospital Canselor Tuanku Muhriz (HCTM). We found that delay in relaying information, especially to the stakeholders such as the frontliners, the staff in the Emergency Department, the medical wards as well as the radiological wards; will result in confusion and unnecessary hassle. Thus, will reduce the smooth operationalization, management and transfer of the patients. A message-centred approach was used to identify the problems that were encountered. There was a delicate interaction between the hospital administrators, health experts and the healthcare staffs on the ground. The importance of effective risk communication among the healthcare staff and patients was also discussed. We found that the provision of timely, accurate and openness of the data extended to our audience will help alleviate anxiety, distrust, and barriers to receiving the message. Based on these issues and strategies, we recorded the experience and lessons learned in the Risk Communication Framework within the context of a teaching hospital. It is imperative to highlight the importance of establishing a comprehensive network for a successful risk communication.

Keywords: Message, reflection, danger, interaction

Abstract of Basic Science Invited Speakers

1B-1

Role of Probiotics on NAFLD

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Abstract

Background: Fatty liver disease (FLD), encompassing both alcoholic (AFLD) and non-alcoholic (NAFLD) forms, is a prevalent hepatic disorder characterized by excessive fat accumulation in the liver. Recent research has highlighted a significant association between FLD and gut dysbiosis, an imbalance in the gut microbiota. The gut-liver axis plays a crucial role in maintaining hepatic health, with gut dysbiosis contributing to the pathogenesis of FLD. Dysbiosis can lead to increased intestinal permeability, facilitating the translocation of bacterial endotoxins like lipopolysaccharides (LPS) into the bloodstream. This endotoxemia triggers hepatic inflammation and steatosis through Toll-like receptor 4 (TLR4) signaling. Furthermore, dysbiosis can alter bile acid metabolism and short-chain fatty acid (SCFA) production, influencing hepatic fat accumulation and insulin resistance. Specific gut bacteria, such as Firmicutes and Bacteroidetes, have been implicated in modulating these processes. The interplay between gut dysbiosis and FLD suggests potential therapeutic targets. Probiotics, prebiotics, and fecal microbiota transplantation (FMT) have shown promise in modulating gut microbiota and improving liver health. Dietary interventions, such as increased fiber intake and reduced saturated fat consumption, may also benefit gut microbiota composition and function. Future research should focus on identifying specific microbial signatures associated with FLD and developing personalized microbiota-based therapies.Conclusion: Gut dysbiosis is intricately linked to the development and progression of fatty liver disease. Understanding this relationship offers new avenues for therapeutic interventions aimed at restoring gut microbiota balance to mitigate hepatic steatosis and inflammation.

1B-5

Molecular Insights of Multidrug Resistance Organisms in the Gastrointestinal Tract

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Abstract

Multidrug resistance (MDR) organisms present a significant challenge in the treatment of gastrointestinal (GI) tract infections, leading to therapeutic failures and increased morbidity and mortality rates. Understanding the molecular mechanisms underlying MDR is crucial for developing effective therapeutic strategies. This abstract synthesizes recent advancements in elucidating the molecular insights of MDR organisms within the GI tract. Key mechanisms driving MDR in GI organisms include alterations in drug targets, efflux pumps, enzymatic inactivation and biofilm formation. Mutations in drug targets, such as DNA gyrase and topoisomerases, confer resistance by preventing drug binding. Additionally, efflux pumps, such as ATP-binding cassette (ABC) transporters and multidrug and toxic compound extrusion (MATE) proteins, actively remove antibiotics from bacterial cells, reducing their efficacy. Enzymatic inactivation mediated by β-lactamases, carbapenemases, and extended-spectrum β-lactamases (ESBLs) neutralizes the activity of antibiotics. Furthermore, biofilm formation protects bacterial communities within the GI tract, enabling MDR organisms to evade antimicrobial agents. Advancements in molecular techniques, including whole-genome sequencing, transcriptomics, and proteomics, have facilitated the characterisation of MDR mechanisms at a molecular level. Integration of omics data has identified key genetic determinants and regulatory networks governing MDR, offering insights into potential targets for therapeutic intervention. Moreover, the role of mobile genetic elements, such as plasmids, integrons, and transposons, in disseminating resistance genes among GI microbiota is increasingly recognised. Horizontal gene transfer mediated by these elements contributes to the rapid spread of MDR traits, posing a formidable challenge to infection control efforts. In conclusion, elucidating the molecular basis of MDR in GI organisms is essential for devising effective treatment strategies and combating the rising threat of antimicrobial resistance. Integrating multidisciplinary approaches, including genomics, transcriptomics, and proteomics, holds promise for identifying novel targets and developing innovative therapies to mitigate MDR-associated complications in the GI tract.

2B-1

Advancement of Medical Education: From Past to Future

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Abstract

The landscape of medical education has undergone significant evolution, particularly in the domains of teaching and learning. Traditionally, medical education was characterized by didactic lectures and rote memorization, with a heavy emphasis on theoretical knowledge. This approach gradually gave way to more interactive and student-centered methodologies, such as problem-based learning (PBL), evidence-based medicine (EBM) and evidence-based education (EBE), which emphasize critical thinking and application of knowledge. The integration of technology has further transformed medical education, with online learning platforms, simulation-based training, and virtual patients enhancing the educational experience. These tools provide immersive and interactive learning environments that better prepare students for clinical practice. For postgraduate education, mentorship and experiential learning remain central, but are increasingly supported by advanced technologies. High-fidelity simulations and augmented reality (AR) offer realistic and risk-free environments for honing clinical skills. Additionally, the use of big data and artificial intelligence (AI) is revolutionizing personalized learning and competency tracking, ensuring that training is tailored to the individual needs of each student. Looking ahead, the future of medical education will likely see further integration of cutting-edge technologies such as virtual reality (VR) and machine learning, which promise to create adaptive and highly personalized learning experiences. These advancements will not only enhance the quality of education but also improve accessibility and efficiency, preparing healthcare professionals to meet the dynamic demands of modern medicine.

Keywords: Medical education, advancement, teaching and learning, artificial intelligence, healthcare professionals

2B-5

Innovative Tools for Medical Education

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Abstract

Creativity and innovation are indispensable for ongoing progress in any industry, but they hold particular significance in healthcare to ensure professionals remain up-to-date and continually enhance their skills in accessible manners. This presentation aims to provide a comprehensive overview of innovative tools for the assessment of medical education, highlighting the transition from long-established methods to advanced technologies.

Innovative tools enhance the learning experience by providing immersive, interactive, and personalized educational environments. Simulation technologies and VR/AR facilitate hands-on practice in a risk-free setting, enabling students to develop and refine clinical skills before encountering real patients.
In the evolving landscape of medical education, Artificial Intelligence (AI) is poised to revolutionize medical education, offering unprecedented opportunities for enhancing learning, assessment, and clinical training. AI-powered tools, such as intelligent tutoring systems, adaptive learning platforms, and virtual patient simulations, provide personalized and scalable learning experiences. These technologies enable medical students to receive tailored instruction, instant feedback, and adaptive assessments, optimizing their educational journey.

This presentation also examines the challenges and considerations in implementing these tools, including the need for infrastructure, training, and addressing the digital divide. Ultimately, the integration of these innovative tools holds the promise of producing more competent and confident healthcare professionals, better prepared to meet the demands of modern medical practice.

Keywords: Innovation; teaching and learning ; assessment; challenges; artificial intelligence

3B-1

Emerging Infectious Disease: Diagnostic Challenges and Threats

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Abstract

The term "emerging infectious diseases" encompasses newly appearing diseases or those rapidly spreading, affecting populations or expanding into new geographic regions. Parasitic diseases pose a significant health hazard in many developing countries and are increasingly affecting developed nations due to the ease of global connectivity. Although parasitic infections are generally uncommon, their profound repercussions on health outcomes underscore the need for collective urgency. Emerging parasitic infections result from a complex interplay of environmental changes, human behavior, vector control issues, drug resistance, host susceptibility, zoonotic transmission, ecological factors, and social and economic conditions. Southeast Asian (SEA) countries have witnessed a surge in parasitic diseases over recent decades, many of which are long-standing neglected tropical diseases. Despite treatment availability, patient management is complicated by diagnostic challenges. For instance, screening guidelines for infectious diseases are not standardized and often do not include sufficient testing for parasitic infections. In this context, we will delve into some emerging parasitic diseases in Malaysia and neighboring countries over the past five years. Emphasis will be on the importance of heightened clinician awareness, laboratory diagnosis, strategic public health interventions, and collaborative research efforts to mitigate the potential consequences of these infections.

Keywords: Emerging; parasitic infections; laboratory diagnosis; Southeast Asia

3B-2

Single cell analysis discerning solid tumour and tumour microenvironment

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Abstract

Cellular heterogeneity within and across tumours has been a major problem in understanding and treating cancer, and the complex heterogeneity is hidden if bulk tumour tissues are used for analysis. Tumour heterogeneity can be classified into inter-tumoral and intra-tumoral heterogeneity, which adds to the tumour disease's complexity. The cutting-edge single-cell sequencing technologies has the potential to enhance diagnosis, prognosis, and in the field of tumour microenvironment (TMEs). To date, the heterogeneity of TMEs remains unclear and warrants further studies. Thus, a single cell analysis is needed to study the heterogeneity of immune cells to develop early diagnostic biomarkers, increase the treatment efficacy, reduce the disease burden, and improve the overall survival rate in cancer patients. This technology also offers favourable conditions for developing new tumour biomarkers and providing more accurate and individualised targeted immunotherapy for better clinical management of cancer patients.

Keywords: Single cell technology; tumour heterogeneity; tumour microenvironment; immune cells

3B-4

Involvement of Extracellular Vesicles in Cancer Pathogenesis and Opportunities for Treatment

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Abstract

While significant strides have been made in cancer research to unravel the complexities of disease pathogenesis and develop novel treatments, cancer remains a formidable global health challenge. In recent years, increasing attention has been directed towards understanding the pivotal role of extracellular vesicles (EVs) generated by cells in disease pathogenesis, particularly in cancer. EVs serve as critical mediators of intercellular communication by encapsulating and transporting biomolecules to influence the biology and function of both cancer cells and cells within the tumor microenvironment. Tumor-derived EVs have emerged as key players in promoting tumor progression by orchestrating various processes such as angiogenesis stimulation, chemoresistance induction, suppression of anti-tumor immune responses, and facilitation of metastasis. Moreover, owing to their abundance, tumor-specific nature, and stability, tumor-derived EVs have garnered attention as promising candidates for cancer biomarkers. Exploration into novel treatment strategies targeting both tumor-derived EVs and anti-tumor EVs derived from immune cells holds considerable potential for advancing cancer therapy. Additionally, EVs are being investigated as a prospective drug delivery system characterized by high efficiency in cargo delivery, low toxicity, and tumor-specificity. These multifaceted roles of EVs underscore their significance in cancer biology and therapy, paving the way for innovative approaches towards combating this complex disease.

Keywords: Extracellular vesicle; cancer; tumor microenvironment; natural killer cell

Acknowledgement: Financial support from Faculty of Medicine, Universiti Kebangsaan Malaysia (FF-2022-330/1) and Ming Medical Sdn. Bhd. (FF-2022-330).

4B-5

Microneedles as a method for transdermal topical drug delivery

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We recently developed a maltose-based, biodegradable transdermal microneedle array patch (MNAP) as a means of hastening the absorption of the local anesthetic EMLA cream applied on children's skin prior to IVC insertion to mitigate IVC-associated pain. We thus aimed to investigate the efficacy and safety of this novel microneedle device in transfusion-dependent thalassemic children requiring routine clinical procedures such as IVC insertion. Besides, we also investigated the utility of the skin conductance algesimeter index (SCAI) as an objective pain measurement substitute for the subjective visual analog scale (VAS) score. Key findings can be evidently observed from our randomised clinical trial (RCT). First, MNAP is safe for application in this target population without incurring any serious adverse event (SAE) or sudden unexpected SAE (SUSAE). Second, a significant difference in mean VAS scores, but not in mean SCAI scores, between MNAP and sham patch recipients was found when they were used in combination with the usual EMLA dosage, signifying additional efficacy advantage of MNAP in hastening EMLA cutaneous delivery. Thus, dissovable microneedles is a promising method for transdermal topical drug delivery.

Keywords: Microneedles, dissovable, maltose, transdermal, topical, drug delivery

5B-1

Conventional Approach to Advanced Bioconvergence Perspective: From ColPatch® to 3D-Bioprinting Technology

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Abstract

Functional biomaterials is currently an essential component under regenerative medicine approach in complementing future precision medicine. The successful development of authentic biomaterial primarily as medical device would considering the resources selection, three-dimensional design using various fabrication techniques, optimum mechanical strength, extensive physico-chemical properties, biological interactions (toxicity, biocompatibility and cellular interactions) prior to implantation on pre-clinical model (small and larger mammals). The major challenge of biomaterial development is commonly faced in the translational stage (clinical trials) before product registration & commercialization (potential industry collaboration). Centre for Tissue Engineering and Regenerative Medicine (CTERM), Faculty of Medicine, Universiti Kebangsaan Malaysia developed a natural-based biomaterials collagen type I from ovine tendon since 2009 and currently known as ColPatch® has been completed the biological safety through accredited laboratory (GLP & ISO), long-term storage evaluation, and clinical trial phase I. ColPatch® intends to cater the current wound management of full-thickness skin injury. Briefly, ColPatch® could be a potential ready-to-use product for patients and clinicians to improve cutaneous wound healing and embark new hope near future. However, current advance manufacturing technology including 3D-bioprinting technology has been explored to achieve future personalized/precision medicine. Immediate skin wound management is a feasible approach to expedite the healing rate and reduce the risk of complications via multifunctional smart biomaterials.

Keywords: Biomaterials; tissue engineering; ColPatch®, 3D-bioprinting; bioconvergence

5B-2

Anti-Dyslipidaemic Properties of Water Soluble Palm Fruit Extract (WSPFE) in Hamsters and Its Translation to Human Clinical Trials

Isa Naina Mohamed[1]*, Nur Balqis MIT[1], Nurul Izzah Ibrahim[1], Qodriyah HMS[1], Tg Mohd Ikhwan TABS[1], Leow Soon Sen[2], Syed Fairus[2]

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Abstract

Background: Water-Soluble Palm Fruit Extract (WSPFE) is rich in phenolics possessing high antioxidative activities. WSPFE is mainly extracted from the aqueous stream of palm oil processing. WSPFE, also known as Oil Palm Phenolics (OPP), consists mainly of caffeoylshikimic acids, p-hydroxybenzoic acid and protocatechuic acid. These phenolic compounds have been shown to have high antioxidative activities and may exhibit anti-hyperlipidaemic and anti-atherogenic properties. Objectives: The research determined the effects of WSPFE on lipid metabolism biomarkers in hyperlipidaemic Golden Syrian hamsters and the execution of phase 1 and 2 clinical trials. Preclinical: Forty male Golden Syrian hamsters were randomly assigned to five groups: 1) Normal Control (NC); 2) Negative Control (High-Fat High-Cholesterol); 3) 1.26 mg/kg Atorvastatin (Statin); 4) Low dose 30 mg/kg WSPFE and 5) High dose 113 mg/kg WSPFE. Both treatment groups of WSPFE showed a significant reduction of total cholesterol (TC), triglyceride (TG), non-high-density lipoprotein-cholesterol (non-HDL-C), apolipoprotein B (Apo-B), 3-hydroxy-3-methylglutaryl coenzyme A (HGM-CoA) reductase and percentage of lipid droplets compared to the Negative Control group, HFHC ($p < 0.05$). Clinical trials: A parallel, placebo-controlled, randomized, double-blinded clinical trial was conducted for two months on 100 healthy volunteers for phase 1 clinical trial and 50 hyperlipidemic volunteers for phase 2 clinical trial. For Phase 1, volunteers were randomly allocated to four treatment arms: Control, 250mg WSPFE, 1000mg WSPFE and 1500mg WSPFE. For Phase 2, volunteers were randomly assigned to two arms: Control and 250mg WSPFE. Each arm consists of 25 volunteers. Withdrawal of fasting blood for biochemical and antioxidant analysis as well as medical examination were conducted at baseline (day 1), day 30 and day 60 for both phases. Results: No serious adverse event (SAE) was reported and no blood parameter abnormalities was detected. 250mg WSPFE was found as the optimum dosage during Phase 1 clinical trial. Phase 2 clinical trial; Hyperlipidemic subjects demonstrated decrease serum triglycerides level and increase glutathione peroxidase and total antioxidant capacity after consuming OPP for 60 days. Conclusion: WSPFE (OPP) possessed anti-hyperlipidaemic properties and has potential for human use.

LIST OF ABSTRACTS

ORAL PRESENTATIONS

AB3

The Impact of Educational Intervention on Reducing Inappropriate Urine Culture Orders: A Tertiary Teaching Hospital Experience

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Abstract

Inappropriate urine cultures contribute significantly to unnecessary healthcare costs, overdiagnosis of urinary tract infection (UTI) and the development of antimicrobial resistance. The objective of this study is to assess the effectiveness of educational intervention in changing clinician's behaviour on ordering urine cultures in accordance with diagnostic stewardship. The study was conducted over a five month period in medical wards of a teaching hospital. Educational interventions included education sessions, distribution of pocket cards summarising urinary tract infection diagnostic criteria, and clinicians receiving real time feedback on ordering practices. Pre- and post-intervention data were obtained to evaluate the behavioural changes and appropriateness of urine culture ordering. A total of 349 hospitalised patients with 401 urine cultures were analysed. The median age was 68 years old, 51.1% male and 50.2% midstream urine specimens. The number of urine cultures ordered decreased significantly by 55.2% post-intervention ($P < 0.05$). In addition, the amount of urine cultures ordered for panculture workout decreased by 52% (IRR: 0.52, $P = 0.07$). Urine culture orders for UTI symptoms increased from 19.1% before intervention to 37% after intervention ($P < 0.05$). The reduction of unnecessary urine culture tests resulted in an anticipated laboratory cost savings of RM 3519 in this study. In conclusion, this study demonstrates the positive impact of educational interventions in reducing inappropriate urine culture and optimising resource utilization, hence minimizing the emergence

of antimicrobial resistance. Future studies should look into the sustainability and scalability of educational interventions in promoting diagnostic stewardship.

Keywords: Education intervention, urine culture orders, diagnostic stewardship

AB4

Early Switch of Intravenous to Oral Antibiotics in Uncomplicated Enterobacteriaceae Bacteremia – A Single Centre Experience

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Abstract

Enterobacteriaceae bloodstream infections pose significant clinical challenges, necessitating prompt effective antimicrobial therapy. This prospective study aims to evaluate the efficacy and safety of early switch therapy (EST) from intravenous (IV) to oral antibiotics in uncomplicated Enterobacteriaceae bacteremia. A total of 51 patients were studied over a year in a tertiary teaching hospital. Patients who met predetermined criteria for clinical stability after 72 hours of IV antibiotics were recruited. Primary outcome was a 30-day relapse rate after completing therapy. Secondary outcomes were 30-day mortality, readmission, and hospital stays. In this study, all eligible patients (100%) successfully switched to oral antibiotics without recurrence. The readmission rate was 7.8%, none related to bacteremia, with 2% mortality due to unrelated causes. In total, 66.7% of patients had hospital stays of less than five days. *Escherichia coli* was the most prevalent cause of bacteremia, accounting for 70.6% and 35.3% of urinary tract infections. In conclusion, this is the first Malaysian study on early switching to oral antibiotics in uncomplicated Enterobacteriaceae bacteremia. It demonstrates the feasibility and safety of early switch oral antibiotics, with positive results and no relapses. These findings lend support to the potential benefits of antimicrobial stewardship methods that aim to reduce IV antibiotic use while optimising oral therapy in selected patients. Future research, including randomised

trials, is essential to establish evidence-based guidelines for treating uncomplicated Enterobacteriaceae bacteremia.

Keywords: Enterobacteriaceae, early switch therapy, oral antibiotics, relapse rate

AB6

A Prospective Double-blind Randomized Control Trial: Comparison of Surgeon Administered Intraoperative Transverse Abdominis Plane Block and Infiltration of Local Anaesthesia at the Wound Site in Open Inguinal Hernioplasty

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Abstract

The technique of transversus abdominis plane (TAP) block involves injecting a local anaesthetic agent between the layers of the internal oblique and transversus abdominis muscles to numb the intercostal nerves supplying the abdominal wall. We aimed to determine the effectiveness of surgeon-administered open TAP block as an adjunct for managing postoperative pain in patients undergoing open hernioplasty. Forty patients undergoing elective open hernioplasty were randomly assigned to either the TAP block or local wound infiltration group. The Lichtenstein tension-free mesh repair technique was employed. Pain intensity was assessed using a numeric rating scale and visual analogue scale (VAS), with rescue analgesia provided if the pain score exceeded three. Patients were monitored for VAS scores and total analgesic requirements over a 24-hour period, and any side effects or complications associated with the technique were recorded. The group receiving TAP block reported lower VAS scores at 4 and 6 h postoperatively. Additionally, the time elapsed before the first dose of rescue analgesia was longer in the TAP block group compared to the local wound infiltration group. However, these differences did not reach statistical significance. No complications were reported in the TAP block group, whereas one patient in the local wound infiltration group developed surgical site infection. Intraoperative TAP block shows promise in managing postoperative pain in patients undergoing inguinal hernioplasty repair. Nonetheless, larger studies are needed to establish its statistical significance. The implementation of a multimodal analgesia regimen, including TAP block, could decrease reliance on sedative opioids in the future.

Keywords: Hernioplasty; analgesia; transversus abdominis plane block; visual analogue score

AB7

Efficacy of Ultrasound Imaging and Reporting Breast Diseases in Young First-Degree Relative Women Using the Bi-Rads System

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Abstract

Ultrasound is emerging as a valuable adjunctive tool, for young patients and dense breasts. Prior research on ultrasound efficacy focuses on older women or those with average risk, overlooking unique considerations and challenges among young First Degree Relatives (FDR). This study aimed to assess the efficacy of ultrasound imaging and reporting breast diseases among this vulnerable group. The study was conducted from January 2023 until August 2023 among 112 FDRs who had ultrasound scanning. They were divided into Group 1 (18-25 years old), Group 2 (26-35 years old), and Group 3 (36-39 years old). The highest percentage of BI-RADS 1 (negative) findings was observed in Group 2 (76.5%), followed by Group 3 (66.7%), and Group 1 (56.9%). Meanwhile, Group 1 recorded the highest case for BI-RADS 2 (benign finding) with 7.8%, followed by Group 3 and 2, with 7.4% and 2.9%, respectively. For BI-RADS 3 (probably benign), Group 1 (33.3%) recorded the highest cases and followed by group 3 (22.2%) and 2 (11.8%). Besides, for BI-RADS 4 (suspicious abnormality), Group 2 had the highest number of cases (8.8%), while Groups 3 (3.7%) and 1 (2.0%) had minimal number of cases. This study demonstrated that a notable proportion of participants, particularly in the 18-25 and 26-35 years age group, had BI-RADS 3 and 4 findings, indicating the presence of potentially malignant abnormalities. The results highlight the importance of ultrasound imaging as a screening tool for young FDRs, as it may help early detection of potential malignancies and facilitate timely intervention and management.

Keywords: Breast cancer; ultrasound; BI-RADS; first-degree relatives

AB10

Comparison between Quality of Sleep among Preclinical and Clinical Students and its Effects on Academic Performance in Universiti Kebangsaan Malaysia

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Abstract

Medical students and healthcare workers have always been thought to have problems with sleep. Studies have shown that this population grapples with inadequate or unsatisfactory sleep. Sleep impairment may adversely affect academic performance. We aimed to compare the quality of sleep between medical students in clinical and preclinical yearsin Universiti Kebangsaan Malaysia (UKM). We also examined the correlation between academic results and quality of sleep amongst the medical students. A cross-sectional, questionnaire study involving 313 medical students was conducted in UKM from October 2022 to September 2023. They included 157 preclinical and 156 clinical students. The Pittsburgh Sleep Quality Index questionnaire was used as the primary instrument of data collection along with their recent academic results. The reported prevalence of good quality sleep was markedly different between clinical and preclinical students, at 33.9% and 72.7%, respectively. Likewise, good quality sleep correlated with good academic performance. Specifically, 46.7% of those with good quality sleep had good academic performance, whereas only 18.8% of those with impaired quality sleep attained good academic results. These findings were statistically significant. Students in their preclinical years reported better quality sleep, and having good quality sleep was associated with better academic performance. It is a little too premature to draw a general conclusion, but medical students should take into consideration their quality of sleep in their journey towards academic excellence and a larger multicenter study is required to solidify this evidence before embarking on policy recommendations.

Keywords: Global PSQI score; grade point average; medical students

AB12

Characterising Adrenal Glands with Functional (Endocrine-Active) Adenomas Using Single-cell RNA Sequencing

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Abstract

Adrenal adenomas are benign lesions which are either functional (endocrine-active), such as aldosterone-producing adenomas (APAs) and pheochromocytomas, or hormonally inactive (endocrine-inactive adenomas). APAs and pheochromocytomas arise from two different regions; APAs from the adrenal cortex and pheochromocytomas from the adrenal medulla. The cortex and medulla have separate embryological origins suggesting these pathological lesions developed through different pathways. This study aims to establish a single-cell atlas of pathological human adrenals that includes the normal adrenal adjacent (NAA) to APAs and pheochromocytomas. Endocrine-active and endocrine-inactive adrenals were collected from five patients who underwent adrenalectomy at St Bartholomew's Hospital, London, United Kingdom. Tumour and NAA were dissociated into single-cell suspensions and cDNA libraries for single-cell RNA sequencing were prepared using the 10x Genomics (Chromium) system. Single-cell data clustering and analysis were performed using Partek® Flow® bioinformatics software. The single-cell atlas revealed that steroidogenic cells have high similarities to dendritic and fibroblast cells. Dendritic cells were also abundantly present in non-aldosterone-producing macronodules compared to NAA. Interestingly, the predominant cell types in all adrenals were endothelial cells, natural killer cells, and zona reticularis cells. This single-cell atlas provides novel insights into the development of endocrine-active adenomas. Similarities of steroidogenic cells with non-steroidogenic cells could reflect their shared embryological origins. The different cell type distributions in NAA may highlight the functional interactions of the hormones secreted within the human adrenal. Further spatial transcriptomic analysis needs to be done to verify this finding and elucidate the pathways leading to the development of APAs and phaeochromocytomas.

Keywords: Human adrenals; adenomas; RNA sequencing; single cell

AB14

Validation of Malay OCI R among Pregnant Women

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Abstract

Obsessive Compulsive Disorder (OCD) is a chronic disorder with worldwide prevalence. This disorder can be screened through an OCR questionnaire originating from Western culture. A Malay Obsessive-Compulsive Inventory-Revised (BMOCIR) questionnaire has been validated among clinical and non-clinical populations. There is scarce information regarding suitability of OCR in screening for this disorder in pregnancy. We aimed to validate the use of this instrument among pregnant women, specifically the antenatal clinic population at Hospital Canselor Tuanku Muhriz. All participants recruited using convenience sampling were asked to respond to the validated BMOCIR through Google Forms. The inclusion criteria were pregnancy and a Bahasa Melayu competence. A Kaiser-Meyer-Olkin value of 0.84 with an internal consistency of 0.9 indicated that this questionnaire has a strong reliability in assessing OCD symptoms in pregnancy. Five domains with a factor loading range of 0.60-0.90 supporting a validated multidimensional factor scale were identified by exploratory investigation. In conclusion, BMOCIR has strong reliability and has now been validated to be used as a screening tool for OCD among pregnant women.

Keyword: Malay OCIR; pregnant women; validation

AB17

The Effectiveness of a Parent-Teacher Mental Health Aid Module to Improve Mental Health Literacy among Adolescents' Gatekeepers: A Pilot Study

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Abstract

Adolescence is the onset of mental disorders. Gatekeeper training programs were one of the suicide prevention initiatives to help enhance gatekeepers' mental health literacy (MHL) for assisting adolescents with mental health challenges. However, there was a lack of research on MHL training modules targeting the gatekeepers of secondary school students in Malaysia. The current study aimed to examine the effectiveness of a Parent-teacher Mental Health Aid (PtMHA) Module to improve mental health literacy among adolescents' gatekeepers in Malaysia. Gatekeepers (20 teachers, 12 parents, and seven service providers) with a mean age of 41.10 ± 8.92 years from 14 secondary schools and two mental health organisations were recruited via purposive sampling for the pilot study of the PtMHA Module in September 2023. The Mental Health Knowledge Schedule-Malay Version (MAKS-M) was utilised to evaluate the participants' MHL. There were 39 participants participated in the pretest and 30 gatekeepers completed the post-test. The gatekeepers' MHL scores were compared before and after the PtMHA intervention. The paired samples t-test results indicated that there was a statistically significant improvement in MHL scores among gatekeepers, t (29) = 4.943, $p < 0.001$ from the pretest (M = 42.73, SD = 3.07) to the post-test (M = 46.40, SD = 3.80). The pilot study of the PtMHA Module showed effectiveness in strengthening gatekeepers' MHL. It is recommended to include a control group for more evidence of the potential to expand the reach of the PtMHA Module as a school-based gatekeeper intervention.

Keywords: Gatekeeper training; mental health literacy; effectiveness; intervention; adolescents

AB18

Deciphering the Mutational Burden of Adrenal Glands Harbouring Aldosterone-Producing Lesions Using Single-Cell RNA Sequencing Data

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Abstract

Recent advancements in single-cell RNA-sequencing (scRNA-seq) have provided significant insights into cellular heterogeneity and genomic instability, enabling the discovery of novel cellular identities that drive disease development and recurrence. One example is SComatic, an algorithm designed for the detection of somatic mutations in single-cell transcriptomic data sets directly without requiring matched single-cell DNA sequencing data. Primary aldosteronism (PA), a common cause of secondary hypertension, can occur due to aldosterone-producing adenomas (APAs) in the adrenal gland that harbour aldosterone-driving somatic mutations. Interestingly, adrenals have a similar significance of enrichment for non-silent mutations in Cancer Gene Census (CGC) genes as sun-exposed skin, the tissue with the highest somatic mutation frequency in humans. Thus, we aimed to identify the mutational burden in normal adrenals adjacent to APAs compared to other excised adrenals using scRNA-seq and the SComatic algorithm. The dataset was also compared

with publicly available single-cell sequencing from the European Nucleotide Archive and the ArrayExpress database. Data were processed, analysed, and annotated for different adrenal cell subtypes and single nucleotide variants were identified by comparing the processed and aligned reads to the human reference transcriptome GRCh38 assembly using SComatic. We postulate that the cells with a high mutational burden accumulate aldosterone-driving somatic mutations which lead to the development of aldosterone-producing lesions. Interestingly, single-cell clusters identified to have somatic mutation burden were endothelial cells and aldosterone-producing cells. Understanding the drivers for these somatic mutation acquisitions will be key to elucidate PA development, which will ultimately translate to improved patient management.

Keywords: Primary aldosteronism; aldosterone-producing adenoma; aldosterone-producing micronodules; single-cell RNA sequencing; mutation burden

AB19

Comparing Random Forest and Regularised Logistic Regression Models for 30-day Mortality in Hospitalised Patients: An Analysis within Hospital Standardised Mortality Ratio (HSMR) Framework

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Abstract

Hospital Standardised Mortality Ratio (HSMR) is the ratio of the observed to the expected number of deaths in the hospital. The latter is derived from statistical models that predicted the number of deaths of selected diagnostic groups after adjusting for available case-mix factors. The prediction model's generalisability and reliability are essential for HSMR pattern monitoring over time. This study aims to develop and validate HSMR prediction models for 30-day in-hospital mortality using regularised logistic regression (pLR) and random forest (RF) and to compare the performance of the two models. Datasets for model development, validation and testing were sourced from the centralised administrative database of 14 Malaysian state hospitals. Final models were developed for 40 diagnostic groups using both RF and pLR algorithms with the optimised hyperparameters. The performances were evaluated based on calibration and discriminative indexes across multiple resampled datasets. The expected mortality number, as predicted by the final pLR and RF models, and their proximity to the observed values were also evaluated. The analysis encompassed a dataset of 1,144,890 hospital admissions, with a 10.2% observed 30-day mortality rate associated with hospitalisation. Comparative performance assessment revealed that pLR models consistently exhibited lower Brier scores and higher c-statistics across all diagnostic groups. However, the aggregate mortality prediction for RF is closer to the observed values compared to pLR. The study has demonstrated that the pLR model may be preferred for HSMR analysis as it has good predictive performance and a more conservative mortality prediction.

Keywords: HSMR; random forest; penalised logistic regression; in-hospital mortality; rate standardization

AB22

Novel Training Simulation Model: A Practical Tool for Laparoscopic-Thoracoscopic Training

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Abstract

Paediatric minimally invasive surgery is now increasingly adopted as the primary modality of intervention due to improved patient outcomes. However, hands-on training in minimally invasive surgery is limited due to limited case numbers in the paediatric population. Simulation models have been shown to improve surgical skills for novice trainees. We have designed 4 simulation models for the purpose of training our paediatric surgical trainees in performing herniotomy, bowel anastomosis, tracheoesophageal fistula (TEF) repair, and pyloromyotomy laparoscopically. These models are made from cheap and readily available materials that can be easily replicated. In order to assess its suitability for training, we had 10 independent surgeons evaluate these models. A survey was later performed to assess user satisfaction. Our survey results showed an overall satisfaction rate of 92%. The individual satisfaction rate for each model ranged from 90 - 100% (hernia repair - 90%, TEF - 90%, pyloromyotomy - 90%, small bowel anastomosis - 100%). We also found that 80 - 100% felt that the individual models can help simulate the skills required for performing the specific procedures (hernia repair - 100%, TEF - 80%, pyloromyotomy - 80%, small bowel anastomosis - 100%). Although the models do not perfectly replicate each clinical condition, these innovative models have the advantage of being cheap and easily reproducible for training purposes and hence we believe these simulation models can be a beneficial adjunct for clinical training.

Keywords: Laparoscopy; thoracoscopy; simulation model

AB23

Knowledge, Attitude, and Practice of Medical Ethics Amongst Paediatric Surgeons and Trainees in Malaysia

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Abstract

Knowledge of medical ethics is important to all practitioners so the best care can be delivered to all patients through safe practice. Surgeons are not exceptions to this. Knowledge, attitude, and practice (KAP) of medical ethics among paediatric surgeons and trainees in Malaysia has not been evaluated before. This study aims to determine the level of KAP regarding medical ethics among these groups. This was a cross-sectional study involving three groups of samples, i.e., paediatric surgeons (PS), paediatric surgical trainees (PST), and medical officers with a special interest in paediatric surgery (MO). A validated KAP questionnaire was used. Novel indexes to measure KAP objectively were calculated using a standard formula for each sample group and compared for significance; p less than 0.05 is taken as significant. The index is rated into 5 classes using a score of 0 to 10, i.e., poor (1-2.99), fair (3-4.99), good (5-6.99), very good (7-8.99), and excellent (9-10). There were 117 samples, i.e., PS n=45 (38.5%), PST n=25 (21.3%), and MO n=47 (40.2%). For knowledge, all three groups display a good index score (mean score of 5.44). For attitude, PS and MO also display a good index score (mean score of 5.81), while the PST index score was fair (4.82). For practice, our study showed the highest score of 7.14 (very good) among PST. However, these differences were not statistically significant (p>0.05). In conclusion, training in paediatric surgery must continue to emphasize professionalism and medical ethics education to deliver the best health care services.

Keywords: KAP; medical ethics; paediatric; surgeons; trainees

AB25

A Comparison Between SNAQ and MNA-SF in the Nutritional Screening of Hospitalised Patients and Dietary Analysis Using Cronometer

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Abstract

Malnutrition affects 6% of community-dwelling older individuals, 15% in nursing homes, and 40% in hospitals. Despite geriatric assessment tools, malnutrition often goes unnoticed. The Mini-Nutritional Assessment (MNA) is recommended, yet implantation is challenging in large elderly populations. The Simplified Nutritional Appetite Questionnaire (SNAQ) offers self-assessment for malnutrition risk in seniors to predict weight loss and aid further nutritional evaluation. This study aimed to compare SNAQ and Mini-Nutritional Assessment-Short Form (MNA-SF) accuracy and validity and assess dietary intake in geriatric patients at risk of malnutrition. A cross-sectional, comparative study involving 350 hospitalised patients aged 65 or older. Participants were recruited from four hospitals in Lahore, Pakistan. SNAQ and MNA-SF questionnaires were used for nutritional screening. 24-hour usual dietary recall captured dietary history. The Cronometer tool facilitated dietary analysis, and SPSS 28.0 software was used for the statistical analysis. MNA-SF and SNAQ exhibited a significant correlation ($p<0.01$). SNAQ's receiver operating characteristic (ROC) curve had an area under the curve (AUC) of 0.711 (0.640-0.770 [95%CI]), while MNA's AUC was 0.999 (0.997-1.00 [95% CI]). SNAQ's sensitivity was 75.2%, with specificity at 35%, compared to MNA's 84.3% sensitivity and 48.8% specificity. Dietary analysis indicated inadequate macronutrient and micronutrient intake relative to the Recommended Dietary Allowance (RDA). SNAQ identified malnourished patients faster and it was reliable compared to MNA-SF. Nonetheless, SNAQ remains useful for identifying malnutrition status.

Keywords: Malnutrition; Geriatric; SNAQ; MNA-SF; Nutrition Assessment

AB27

Paediatric Laparoscopic Hernia Repair: 16 Years' Experience in a Single Centre

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Abstract

The incidence of paediatric inguinal hernia (PIH) is between 0.8% to 4.4% annually with indirect inguinal hernia due to patent processus vaginalis (PPV) being the main pathology. Laparoscopic hernia repair has the advantage of good cosmesis, faster recovery, and most importantly allows visualisation of both internal rings for repair concurrently. Our centre has been performing laparoscopic inguinal hernia repair since 2007 and in this time, we have designed a novel on-table assessment called the external squeeze test (EST) to reduce recurrences. In 16 years, we have performed 1261 ligation of PPV and have had 12 cases of recurrence (recurrence rate of 0.95%). In the literature, the recurrence rate following laparoscopic hernia repair is reported to be around 0.3% to 5.7%. Out of the 12 recurrent hernias documented, 7 (58.3%) of the recurrence was due to EST not being performed and 4 (41.7%) with slipped ligature. Our laparoscopic hernia outcomes in 16 years have been excellent with low reported complication rates which is likely due to performing the on-table EST.

Keywords: Laparoscopic hernia repair; recurrence hernia; patent processus vaginalis (PPV); external squeeze test (EST)

AB29

Assessing the Influence of Dry Eye Symptoms on Night Driving Difficulties in Malaysian Adults

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Abstract

Dry eye syndrome (DES) adversely affects comfort, visual acuity, and tear film stability, with symptoms worsening in low-light conditions such as night driving. This study explores the link between dry eye symptoms and night driving difficulties in Malaysian adults, utilizing the self-reported Malay versions of the Vision and Night Driving Questionnaire (VND-Q) and Ocular Surface Disease Index (OSDI). Analyzing responses from 373 participants (43.4% male, 56.6% female; average age 30.98 ± 5.22 years), revealed moderate levels of night driving difficulties (VND-Q score: 16.50 ± 5.86) and ocular surface symptoms (OSDI score: 20.17 ± 14.15). Significant differences in VND-Q scores were observed across different OSDI categories (normal, mild, moderate, and severe dry eye) ($p<0.001$), with no significant difference between normal-mild and moderate-severe categories after Bonferroni correction. A positive correlation was found between VND-Q and OSDI scores ($p<0.001$), suggesting that increased dry eye symptoms are linked to greater night driving difficulty. Multiple regression analysis showed OSDI as a significant predictor of VND-Q scores, while gender was not. The study concluded that dry eye symptoms substantially impact night driving difficulties, necessitating increased awareness and education. Recommendations to improve night driving safety include regular vision screening for dry eye symptoms, workplace interventions, and promoting healthy lifestyles. The study calls for ongoing research and collaboration to address the challenges of dry eye symptoms during night driving, aiming to enhance road safety and eye health.

Keywords: Night driving difficulty; dry eye symptoms; VND-Q; OSDI; Malaysian drivers

AB30

Construction of SARS-CoV-2 Spike Protein by Mammalian Expression System

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Abstract

The construction of viral like-particles (VLPs) and recombinant proteins using mammalian expression systems has emerged as a promising approach for biosafety level 2 (BSL-2) compatible virus research and vaccine development against highly pathogenic viruses such as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The spike glycoprotein of SARS-CoV-2 plays a pivotal role in VLP construction, with its expression levels serving as an indicator for successful VLP assembly. In this study, we sought to produce the spike glycoprotein using a mammalian expression system to equip our laboratory with antigenic SARS-CoV-2 proteins. The recombinant spike protein was constructed in Chinese hamster ovary (CHO) cells by transfecting the cells with plasmid vector pcDNA3.1(+) carrying spike protein gene (3860 bp). Successful expression of spike glycoproteins was revealed through SDS-PAGE with a strong signal band positioned higher than the expected molecular weight for the spike glycoprotein, indicating possible post-translational modifications (PTMs). Further analysis using HPLC confirmed the expression of the spike glycoprotein in CHO cells and provided evidence of PTMs occurring during spike glycoprotein expression. Mass spectrometry analysis further confirmed the identity of the purified protein as a spike glycoprotein of SARS-CoV-2. Our research contributes valuable insights into the feasibility of generating SARS-CoV-2 recombinant protein using mammalian cell culture, providing a foundation for further investigations into the optimal combination of viral proteins for enhanced VLP production.

Keywords: SARS-CoV-2; VLPs; recombinant protein; expression system; COVID-19

AB33

Potential Biosensors for Detecting Premature Coronary Artery Disease at the Point of Care

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Abstract

Coronary artery disease (CAD) remains one of the leading causes of mortality and morbidity globally. The incidence of CAD among young individuals below the age of 45 comprises 3 to 10% of CAD cases worldwide. This cohort of individuals was identified to have premature CAD (pCAD). The difference in risk factor patterns for premature compared to late-onset CAD makes the diagnosis of pCAD a challenging task. The introduction of omics technology and growth in the development of devices for the detection of biomarkers associated with pCAD provides a platform for risk prediction of cardiovascular events among young individuals. Biochemical assays have been considered to replace cardiac biosensor platforms to allow rapid diagnosis of diseases. Electrochemical biosensors play an important role as they have many of the required characteristics for point-of-care diagnosis. Electrochemical cardiac biosensors being cheap and scalable devices, are highly adapted for monitoring the onset and progress of CAD in a fast and accurate manner. The use of a single biomarker to diagnose pCAD has been found to have setbacks, thus, multiplexed detection of biomarkers for pCAD has emerged as a promising alternative in the early diagnosis and prognostication of pCAD. The existing data were on the known and emerging panels of cardiac biomarkers to detect pCAD. We also provide an overview of current technological advancements of biosensing strategies established for detecting multiplexed panels of biomarkers with a view towards affordable devices with excellent performance for point-of-care diagnosis and monitoring of pCAD in the clinical setting.

Keywords: Biosensor; premature coronary artery disease; electrochemistry; point-of-care testing; serum

AB35

Development, Optimization and Physicochemical Characterizations of Nanoformulation Hydroxyapatite-Loaded Tocotrienols-rich Fraction for Effective Oral Delivery

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Abstract

Tocotrienols is a form of lipid-soluble vitamin E. It is well known for its potent antioxidant and anti-inflammatory properties, hence is widely studied as a potential treatment for various bone disorders. However, its application in therapeutics is limited due to its poor oral bioavailability. To address this issue, nanoformulation strategies have been explored. Nano-hydroxyapatite (nHA) is recognized as a potential delivery vehicle due to its good biocompatibility and excellent osteogenic properties in orthopaedic applications. This study aimed to develop and optimize the nHA loaded with tocotrienols-rich fraction (nHA-TRF) formulation using Response Surface Methodology (RSM), specifically using the Central Composite Design (CCD). The nHA-TRF was prepared via physical adsorption. Briefly, nHA was dispersed into TRF solution using ultrasonication and was incubated for ~14 hours under constant stirring. The suspension was subjected to high-speed centrifugation to obtain the nHA-TRF nanoparticle. CCD results revealed that the mass of nHA, concentration of TRF and incubation time significantly affected the particle size, zeta potential and encapsulation efficiency of nHA-TRF. The optimized nHA-TRF formulation exhibited a small particle size of ~268 nm, a narrow polydispersity index of <0.4, a high zeta potential of ~-20 mV and an encapsulation efficiency of ~18%. Further chemical characterization using Fourier transform infrared spectroscopy (FTIR) was performed to elucidate the chemical bonds present in nHA-TRF. X-ray diffraction (XRD) results confirmed the crystalline structure of nHA-TRF. Taken together, these findings suggested that nHA may be a potential delivery vehicle for effective oral delivery of TRF in bone disorders.

Keywords: Tocotrienol-rich fraction; nano-hydroxyapatite; response surface methodology; central composite design; delivery vehicle

AB37

Tailoring Parenteral Nutrition for Adult Patients at Risk of Refeeding Syndrome: A Formulation Development Strategy

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Abstract

Background: Patients at risk of refeeding syndrome (RS) should start with lower calorie intake and receive potassium, phosphate, and magnesium supplementation. For parenteral nutrition (PN), using only 50% of the commercial bag content for adult patients at RS risk is common practice. However, this approach also reduces all the other nutrient content the patients receive. Thus, a special formulation with low calories and sufficient nutrients is required for this population. Objective: This study aims to design specialised PN formulations for RS at-risk patients. Methodology: The nutrient requirements according to RS guidelines were calculated and compared to the contents of commercial bags. Next, the trends in the nutrient contents of the commercial bags were identified by plotting graphs of each component versus total calories and the gaps that need to be filled for RS at-risk patients were discovered. Then, new formulations were designed to provide a small-volume, lower-calorie bag with sufficient electrolytes by reducing the carbohydrate and increasing the protein, potassium, phosphate, and magnesium content to fill the gaps. Lastly, prediction of the formulation stability was made using compounding software, and adjustments were made accordingly. Results: Twenty-two formulations with 600ml and approximately 600kcal of content were developed preliminarily; two with the highest protein, phosphate, and potassium concentrations and lower carbohydrate content were chosen. The two chosen formulations will undergo physicochemical and microbiological stability tests to confirm their stability. Conclusion: The specialised PN formulations with established stability profiles are expected to improve treatment outcomes and clinical safety for patients at risk of RS.

Keywords: Refeeding syndrome; parenteral nutrition; formulation design; carbohydrate; electrolytes

AB40

Do Necessity and Concern for Antiepileptic Drugs Affect Medication Adherence?

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Abstract

Anti-epileptic drugs (AEDs) are crucial for reducing epilepsy seizures. Adherence to AEDs is essential for controlling seizures, while missing doses or withdrawal can result in breakthrough seizures, potentially impacting patients' safety and well-being. This cross-sectional study was conducted in three selected public hospitals in Malaysia, aims to investigate the necessity and concern regarding AEDs among patients with epilepsy (PWEs) and their impact on medication adherence. BMQ-Epilepsy Specific (AED-Necessity and AED-Concern scales) and MALMAS questionnaires were administered to PWEs. Using SPSS 26, descriptive statistics and multiple linear regression technique were utilized. Eighty-six PWEs were selected through convenience sampling (mean age = 33.9 ± 11.3 years; 59.3% female; 51.2% unmarried; 94.2% Malay). Results showed that almost 55% of PWEs expressed doubts about the necessity of AEDs and 50% showed less concern about the negative impacts of AEDs. MALMAS scores revealed 41.9% of PWEs are highly adherent to medications. However, 32.6% were reported to exhibit low adherence. PWEs who perceived AEDs as more necessary were significantly more likely to adhere to medication (β=0.63, p=0.001). Conversely, patients expressing greater concern about AEDs had lower adherence (β=-0.48, p=0.007). Almost 22% of the variation in medication adherence was explained by AED necessity and concern (R^2=0.218). This study concludes that PWEs' necessity and concern are significantly related to adherence and are crucial issues needing attention from healthcare providers.

Keywords: Anti-epileptic drug; patients with epilepsy; necessity; concern; adherence

AB41

The Senile Larynx: Injection Laryngoplasty as an Effective Treatment for Glottal Insufficiency in Presbylarynx

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Abstract

Presbylarynx is age-related structural and functional changes of the vocal folds characterized by vocal fold bowing attributed to connective tissue loss, resulting in weak voice and increased risk of aspiration. Traditionally, the first-line treatment is voice therapy however, it may be insufficient in large glottal gap. Eight patients with features of presbylarynx from laryngostroboscopy were included. Dysphonia was the main presenting complain followed by aspiration symptoms. All patients received office injection laryngoplasty with hyaluronic acid or calcium hydroxyapatite to bilateral paraglottic space. Serial follow-up revealed adequate closure of glottal gap in all patients, with resolved aspiration and improvement in both subjective and objective voice parameters. Injection laryngoplasty is an effective first line of treatment for presbylarynx with large glottal gap. It improves the quality of life and prevent further devastating complication such as aspiration pneumonia.

Keywords: Presbylarynx; geriatric; injection laryngoplasty; glottic insufficiency

AB42

Clinical Outcome of Transient Ischemic Attack and Mild Stroke Following Hospital Canselor Tuanku Muhriz Fast Track Stroke Protocol

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Abstract

Individuals with transient ischemic attack (TIA) and mild stroke face an increased risk of experiencing recurrent strokes, resulting in increased mortality and disability rates. In developed countries, a fast track protocol for immediate recognition and control of risk factors during hospitalization have been implemented and proven to significantly improve the stroke recurrence rate. This study aimed to determine the efficacy of this protocol, and stroke recurrence rate in our population. This is a single centre, prospective, longitudinal study conducted from December 2021 to May 2022, in which all patients with TIA and mild stroke underwent neurovascular imaging, echocardiogram and bloods to assess the control of risk factors during the admission. They were given antiplatelets and statin at the time of diagnosis. Anti-diabetic and anti-hypertensives medications were also served if indicated. Early referral to Cardiology or Vascular teams were done based on the imaging studies. Patients were assessed for any recurrence of stroke and improvement in Life's Simple 7 scoring 90 days after the stroke. A total of 141 patients were recruited, 79.4% had mild stroke with a median (IQR) NIH Stroke Scale of 2 (1-2) whereas 20.6% had TIA with a median (IQR) ABCD2 score of 3-5. The stroke recurrence rate on day-90 was as low as 3.5% with a statistically significant improvement of Life's Simple 7 scoring (p<0.001). Early recognition and risk factor control for TIA and mild stroke are crucial to prevent fatal complications and enhance the cost effectiveness in treatment of acute stroke.

Keywords: Transient ischemic attack; recurrent stroke; life's simple 7; optimal medical treatment

AB44

Elucidation of NPHS2 Mutations in Pediatric Patients with Congenital and Steroid-Resistant Nephrotic Syndrome

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Abstract

Most pediatric patients with steroid-resistant nephrotic syndrome (SRNS) and congenital nephrotic syndrome (CNS) eventually progressed to end-stage renal failure (ESRF. NPHS2 is one of the essential gene components, carrying an autosomal recessive inheritance that encodes for podocytes. Hence, this study aims to determine the prevalence and renal outcome of NPHS2 mutation among pediatric patients with CNS and SRNS. Literature reported sufficient information on NPHS2 mutation in pediatric patients with CNS and SRNS. 2889 pediatric patients from 40 studies were screened for NPHS2 mutation and included. Patients' mean age was 3.4 years (0-13 years old) and the majority (93.7%) were females. Using the random effects model, the pooled proportion of NPHS2 mutations was 0.11 (95% CI 0.08; 0.14, prediction interval 0.02; 0.40, $p<0.001$) with substantial between-study heterogeneity ($I^2 = 73.8\%$). Among the 15 studies that reported on ESRF in pediatric patients with NPHS2 mutations, the pooled proportion in this cohort was 0.47 (95% CI 0.31; 0.63, prediction interval 0.11; 0.87, $p<0.001$) with substantial between-study heterogeneity ($I^2 = 77.6\%$). Our study showed that NPHS2 (regression coefficient = 5.49, $p=0.08$) mutations did not predict ESRF in pediatric patients with CNS and SRNS. Nevertheless, NPHS2 mutation from the European continents had a significantly higher risk of getting ESRF ($p<0.05$, regression coefficient = 1.3, OR = 7.97, 95% CI 0.30; 2.30). It is recommended that screening for NPHS2 mutation be done for earlier diagnosis and better patient outcomes. More data are needed to better understand the impact of NPHS2 mutations among CNS and SRNS patients.

Keywords: NPHS2; congenital nephrotic syndrome, steroid resistant nephrotic syndrome; pediatric; end stage renal failure

AB46

Optimisation of Indirect Enzyme-Linked Immunosorbent Assays for the Quantitative Measurement of Serum Anti-Asparaginase Immunoglobulin G in Paediatric Acute Lymphoblastic Leukaemia Patients

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Abstract

L-asparaginase (ASNase) is a chemotherapeutic drug for treating paediatric acute lymphoblastic leukaemia. Its immunogenicity often prompts the production of antibodies, which could cause allergic reactions or silent drug inactivation in patients. Quantifying such antibodies helps to evaluate the post-administration ASNase effects. This study aimed to develop an indirect enzyme-linked immunosorbent assays (ELISA) for measuring human anti-ASNase immunoglobulin (Ig) G levels. Two drug formulations, native *E. coli* and pegylated ASNases were applied as the plate-coating antigens. Lacking a positive patient pool, the rabbit anti-ASNase IgG was adopted as the assay calibrators. Goat anti-rabbit biotinylated-IgG acted as detector antibody. The commercial DuoSet ELISA Ancillary Reagent Kit 2 with the base reagents from R&D Systems was used for the assay establishment. The antigen-coating concentrations were optimised at 0.02 IU/mL and 0.05 IU/mL for the native and pegylated formulations, respectively. Coated plates underwent approximately 14 hours of overnight incubation at 4°C. Detector antibody concentration was optimised at 50 ng/mL. Assay procedures were as per recommended protocol by R&D Systems. Optical density of the microplate-wells was determined at UV wavelengths of 450 nm and 570 nm. Calibration range for the native formulation was optimised at 2-fold dilution from 0.125 – 9.7656×10^{-4} µg/mL (n=8; R^2=0.9999; %recovery=96.83%-117.45%), and the pegylated formulation at 2-fold dilution from 0.2 – 1.5625×10^{-3} µg/mL (n=8; R^2=1.000; %recovery=95.94%-102.04%). We have designed two indirect ELISAs using different ASNase formulations that potentially measure the human anti-ASNase IgG concentrations in serum samples. Further testing using the patients' serum samples with optimisation on the dilution factors is required.

Keywords: Anti-asparaginase IgG; indirect ELISA; paediatric acute lymphoblastic leukaemia; asparaginase hypersensitivity

AB48

Paediatric intubation box – An innovative modification from the COVID-19 Pandemic

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Abstract

The initial intubation box was designed to allow for intubation of at- risk patients whilst simultaneously providing an additional layer of protection for healthcare workers during the COVID-19 pandemic. However, the initial design of the box was made for intubation of adults, thus making paediatric and neonatal intubation impossible with these boxes. In order to meet the needs for paediatric and neonatal intubation, modifications were made to the design of the intubation box. This was made possible by a grant obtained from the National Council of Women's Organisation. The modification that was made was the repositioning of the placement of entry windows in the box and also addition of entry windows to allow for assistance during the process of intubation. These adjustments allowed for intubation of babies and small children. A total of 16 paediatric intubation boxes and 8 neonatal intubation boxes were produced and these modified intubation boxes were then distributed for use and testing in 10 hospitals in the country. The feedback from the users was 100% positive. The users found the modified intubation boxes to be useful not only during the process of intubation, but also used the intubation box as an additional layer of protection during the process of swabbing for COVID-19 testing. This innovation is just one example of how resourceful we can be when we find ourselves in positions of adversity.

Keywords: Paediatric; intubation; Covid-19; pandemic; innovation

AB51

In silico Prediction of microRNA Targeted Gene in Human Umbilical Vein Endothelial Cells Exposed to Hypertensive Pregnancies

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Abstract

Hypertensive disorders of pregnancies (HDP) affect up to 10% of all pregnancies and serve as a major cause of morbidity and mortality among maternal and perinatal. Offspring affected by HDP are at risk of developing cardiovascular disease (CVD). Previous studies found that the dysregulation of microRNAs (miRNA) contributes to CVD development. However, CVD development due to the alteration of the miRNAs' expression in offspring exposed to HDP is not well-elucidated. Therefore, the study aims to examine miRNA profiling associated with CVD by using HUVEC exposed to hypertensive pregnancies. HUVECs were isolated from the cords of normal and hypertensive mothers. Based on miRNA sequencing analysis, eight differentially expressed miRNAs were discovered to be significantly upregulated ($p < 0.05$) in hypertensive HUVEC compared to control. Then, the predicted targeted genes from eight miRNAs were identified using four different algorithms (DIANA-microT-CDS, TargetScan, miRDB, and miRWalk). Based on these predicted targeted genes, several genes were involved in angiogenesis, which plays a critical part in the pathogenesis and also the treatment of CVD. Moreover, the predicted targeted genes were significantly ($p < 0.05$) found to be associated with the cellular senescence pathway. Lastly, the protein-protein interaction network shows that genes with a high degree of interaction are mainly related to cardiovascular function, and ACTB, the gene that encodes for β-actin has the highest degree of interaction among other genes. Therefore, this study could provide new insights into the potential roles of miRNA in the occurrence of CVD in offspring exposed to HDP.

Keywords: Hypertensive disorders of pregnancy; microRNA; offspring; in silico; human umbilical vein endothelial cells

AB53

Exploring the Intricacies of Infratemporal Fossa Via an Endoscopic Assisted Approach

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Abstract

Accessing the infratemporal fossa through surgery presents a complex and challenging task due to its deep positioning and the presence of crucial neurovascular structures. We have introduced a novel approach effectively managing complex lesions within the intratemporal fossa. We present our experience in managing three cases of infratemporal fossa abscess and odontogenic keratocyst that were successfully treated with the method. The procedure, conducted under general anaesthesia, involved an unicoronal temporal incision along the hairline to the preauricular region providing access to the infratemporal cavity. Utilizing the Olympus scope system, the temporalis muscle was elevated for visualization, and endoscopic guidance facilitated the debridement and removal of infratemporal fossa lesions. This marks the first instance of surgical treatment of infratemporal fossa lesions via this method and highlights the promising potential of endoscopic-assisted approaches in managing challenging infratemporal pathologies. The novel endoscopic-assisted approach is a less invasive and more precise technique for addressing infratemporal fossa lesions. It provides improved visualization, efficient treatment, cosmetically pleasing scars, and high patient satisfaction.

Keywords: Infratemporal fossa; endoscopic; approach; minimally invasive; head and neck surgery

AB55

Awareness and Attitudes toward Organ Donation in Medical Staff at Queen Elizabeth Hospital, Sabah

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Abstract

Organ transplantation is vital for patients with end-stage organ failure, yet donor scarcity persists. This study aims to assess the awareness and perceptions regarding organ donation among medical staff at Queen Elizabeth Hospital to pinpoint potential facilitators and barriers. A cross-sectional questionnaire-based study was conducted among medical staff, assessing demographics, knowledge, and attitudes toward organ donation. Results: The study found that 52% of participants were registered organ donors. 89% were willing to receive an organ transplant if needed, but only 17% were willing to register as donors in the future. There were gaps in knowledge, with an average score of 4.2 out of 7, showing moderate awareness. Most participants (70%) were unsure about the legal and ethical aspects of organ donation, which impacted their attitudes significantly ($p < 0.05$). Those who had attended organ donation awareness programs had a more positive attitude towards donation, with an average score of 3.6 out of 5, compared to those who had not attended, with an average score of 2.8 out of 5. The results indicate a fundamental level of awareness, yet they also expose significant deficiencies in specific knowledge and notable disparities in attitudes toward organ donation. Enhanced educational programs and clearer communication about organ donation processes are required to improve medical officers' willingness to participate in organ donation. Strengthening advocacy roles among healthcare professionals can potentially increase donor rates.

Keywords: Organ donation; awareness; medical staff; healthcare education

AB56

A Prospective Study of Pathogens Causing Acute Gastroenteritis among Children in a Tertiary Hospital in Kuala Lumpur, Malaysia

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Abstract

Rotavirus is a major cause of acute gastroenteritis in children. After the introduction of the rotavirus vaccine worldwide, norovirus started to be more prevalent. This study aimed to investigate the prevalence and epidemiological patterns of pathogens causing pediatric gastroenteritis, considering the impact of the rotavirus vaccination program and socioeconomic changes in Malaysia. A preliminary period of 6 months from the intended prospective study of 2 years is analyzed and reviewed. Using the Combo Antigen Rapid Test, hospitalized pediatric patients at UKM Specialist Children's Hospital in Malaysia had stool specimens tested for rotavirus, norovirus, and adenovirus. Biochemical characteristics were retrospectively analyzed. The patients were 58.4% males and 41.6% females. The average age of a patient who is diagnosed with a gastroenteritis infection is 2 years old. The mean onset of symptoms is 3–4 days (3.5±0.5). Of all the samples, 49.8% exhibited mono-infection, while 6.46% exhibited co-infection. Rotavirus was the most prevalent mono infection (35%), followed by norovirus (11.03%), and adenovirus (3.8%). Norovirus type 2 (11.0%) predominated over type 1 (2.28%). Co-infections included rotavirus with norovirus (n = 6), adenovirus (n = 3), and Salmonella spp. (n = 6). Rotavirus gastroenteritis showed the highest elevation of white blood cells (WBC) (12.04±4.7) and C-reactive proteins (15±31) levels among all etiological agents. This study highlights the significant burden of viral gastroenteritis among pediatric patients in Malaysia. Understanding the epidemiological patterns of infective gastroenteritis is essential for effective management and prevention strategies.

Keywords: Pediatrics; gastroenteritis; rotavirus; norovirus; prevalence

AB58

Functional Role of Notch4 in Primary Aldosteronism

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Abstract

Primary aldosteronism (PA) is a common cause of secondary hypertension, estimated to affect 5–15% of hypertensive patients. It is also one of the few forms of hypertension that could potentially be resolved through surgical treatment. Past studies investigating the disease pathophysiology mainly focused on finding the somatic genetic changes in the excised tissue that cause excessive aldosterone production, the aldosterone-producing adenoma. We, however, would like to investigate the germline genetic factors that could contribute to non-familial PA. This was conducted through whole-genome sequencing (WGS) of patients with PA to reveal any enriched variants compared to the control population. Interestingly, an enrichment of rare variants in the neurogenic locus notch homolog 4 (NOTCH4) was found among patients with PA (21/100). NOTCH4 is reported to play a crucial role in endothelial cell function and vascular development. Single-cell analysis of human adrenals identified NOTCH4 to be expressed specifically in endothelial cells. Hence, to investigate the role of NOTCH4 mutations in primary aldosteronism, we co-cultured endothelial cells (HCMEC) with the adrenocortical cell line (HAC15) and measured aldosterone levels in the 24-h supernatant by CLIA and the expression of *CYP11B2*, the gene encoding for the enzyme aldosterone synthase, in the cell extract through qPCR. 24-h co-culturing of HCMEC with HAC15 increased aldosterone production by 3.90 + 0.15-fold (n = 6, $p = 0.000004$) and expression of *CYP11B2* by 1.82 + 0.37-fold (n = 6, $p = 0.03$). Similarly, overexpressing NOTCH4 in HAC15 increased *CYP11B2* expression by 1.74+0.08-fold (n = 16, $p = 0.000003$). In conclusion,

this study suggests that alterations in NOTCH4 expression in the adrenals can impact aldosterone production.

Keywords: Primary aldosteronism (PA); CYP11B2; NOTCH4; aldosterone

AB60

Assessment of Renin-Angiotensin-Aldosterone System (RAAS) Modulation on Angiotensin-Converting Enzyme 2 (ACE2) Expression in Human Primary Adrenal Cells and Cell Lines

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Abstract

Renin-angiotensin-aldosterone system (RAAS) modulators have been reported to upregulate ACE2 expression and potentially affect COVID-19 infectivity and severity. We thus aim to assess RAAS modulation on ACE2 expression and activity in primary adrenal cells and two human cell lines, namely A549 (a human epithelial carcinoma cell line) and HAC15 (an adrenocortical carcinoma cell line), by using the angiotensin receptor blocker losartan. In addition, serum was collected from asymptomatic and symptomatic COVID-19 patients, and antibodies to SARS-CoV-2 levels were compared with soluble ACE2 measurements. The results found that soluble ACE2 levels were significantly higher in HAC15 cells compared with A549 cells. Treatment of HAC15 cells with 10μM losartan significantly decreased angiotensin II-induced aldosterone production and the aldosterone synthase gene (CYP11B2) expression. Interestingly, the treatment significantly increased soluble ACE2 production, also in A549 cells, but decreased cellular ACE2 mRNA expression ($p<0.05$). In primary adrenal cells, results were similar to those in HAC15 cells, whereby ACE2 mRNA expression was decreased by treatment ($p< 0.05$), with a trend for a decrease in cellular ACE2 activity ($p = 0.09$). In COVID-19 patients, the serum of asymptomatic patients presented a correlation between levels of antibodies to SARS-CoV2 and sampling day relative to positive PCR ($r = 0.417$, $p<0.01$), but not with soluble ACE2 levels. To note, symptomatic patients had a trend to have higher antibodies to SARS-CoV2 than asymptomatic patients ($p = 0.07$). In conclusion, our results show that RAAS modulation by the angiotensin II receptor blocker losartan affects ACE2 levels and activity in primary human adrenal cells and in epithelial and adrenocortical cell lines.

Keywords: ACE2; renin-angiotensin-aldosterone system (RAAS); Losartan; COVID-19; SARS-CoV-2

AB64

Effects of Ejiao on Histomorphometric Indices of Subchondral Bone of Knee Joint in Ovariectomised Rats with Osteoarthritis Induced with Monosodium Iodoacetate

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Abstract

The remodeling of subchondral bone contributes to the pathogenesis of osteoarthritis. However, studies on the effects of therapeutic agents on this structure are limited. Ejiao, a traditional Chinese medicine made from stewed donkey's skin, has been reported to suppress high bone remodeling in ovariectomised rats. This study aims to determine the effects of Ejiao on the subchondral bone of knee joints in ovariectomized rats with osteoarthritis induced by monosodium iodoacetate (MIA). Ovariectomised female Sprague-Dawley rats (3 months old) were assigned randomly into 6 groups (n = 8 per group). Except for the sham group, MIA was injected into the right knee joint of rats one month after ovariectomy to induce osteoarthritis. The osteoarthritis groups were treated with Ejiao (0.26, 0.53, and 1.06 g/kg/day p.o.) or glucosamine sulfate (250 mg/kg/day p.o.) one day after induction for 5 weeks. The sham and negative control groups received an equal volume of distilled water as the vehicle. After sacrifice, bone histomorphometric analysis was performed on the distal femur of the right knee joint using the Weibel grid technique. The results showed that MIA decreased calcein-double-labeled surface but increased osteoclast surface significantly ($p<0.05$ vs. sham). Ejiao at all doses decreased osteoclast surface, but only low-dose Ejiao increased double-labelled surface and trabecular number ($p<0.05$ vs. osteoarthritis control). As a conclusion, Ejiao, especially at a low dose, could prevent osteoclast formation and preserve bone formation in the subchondral bone of rats with osteoarthritis. The actions of Ejiao on subchondral bone could contribute to its effects on osteoarthritis prevention.

Keywords: Cartilage; colla corii asini; gelatin; joint; traditional Chinese medicine

AB66

Assessing the Anti-Steatosis Effect of *Aurantiochytrium* sp. on Metabolic-Associated Fatty Liver Disease (MAFLD) induced-HepG2 Cell Model

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Abstract

Metabolic-associated fatty liver disease (MAFLD), which is the hepatic manifestation of metabolic syndrome is the most common cause of liver disease worldwide. MAFLD is characterized by steatosis that may progress into nonalcoholic steatohepatitis (NASH), fibrosis, and cirrhosis. In recent years, microalgae have gained interest as dietary supplements to improve metabolic disorders due to being rich in bioactive compounds that exhibit antioxidant and anti-inflammatory. However, only a few microalgae species have been studied for their effect on hepatic steatosis and their underlying mechanism of action is lacking. In this study, we evaluated the anti-steatosis effect of *Aurantiochytrium* sp. extract in MAFLD-induced HepG2 cells. Cells were pre-treated with 100, 50, 25, 12.5, and 6.25 µg/ µl of *Aurantiochytrium* sp. hot water extract (AHWE) for 24 h. Then, cells were induced of MAFLD through free fatty overloading for 24 h. Lipid content of cells were determined by Oil red O staining and Triglyceride ELISA. Gene expressions of nine target lipid metabolism genes (FASN, SREBF1, ACC1, GPAT, PPARα, C/ebpα, CPT1A, CPT2, and SCD) were analysed using RT-qPCR. Cell viability and cytotoxicity of microalgae extract were evaluated by MTS and LDH assays, respectively. Interestingly, AHWE was able to reduce lipid accumulation, but no target genes were affected. Also, AHWE reduced cell viability at 100 and 50 µg/. In conclusion, the present study demonstrates that 24 h incubation of *Aurantiochytrium* sp. hot water extract imparted an anti-steatosis effect in MAFLD-induced HepG2 cells.

Keywords: Metabolic-associated fatty liver disease (MAFLD); microalgae; HepG2

AB67

The Efficacy of Elonide Nasal Corticosteroids in Managing Allergic Rhinitis

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Abstract

Mometasone furoate nasal spray is efficacious in relieving allergic rhinitis symptoms. The objectives of this study are; firstly to compare the efficacy of Elonide to Nasonex® and placebo; and secondly; to investigate the side effects of Elonide. This was a prospective single centered, double blinded, randomized, placebo-controlled trial. A total of 163 participants were randomized into three treatment groups of Elonide (n=56), Nasonex®(n=54) and placebo nasal sprays (n=53). Treatment was administered for 4 weeks. The primary outcome measure was the Total Nasal Resistance (TNR) and the secondary outcomes were Visual Analogue Score (VAS) and Rhinoconjunctivitis Quality of Life Questionnaire (RQOLQ). Side effects were recorded.There were significant improvements for all groups from baseline. Elonide had the largest improvement in mean difference in VAS (57.09±17.14 vs 33.90±17.80, p<0.01), RQOLQ (2.87±1.17 vs 1.39±0.95, p<0.01) and TNR (1.37±2.55 vs 0.56±0.35, p<0.01) after 4 weeks of treatment. Elonide group had the greatest mean difference for all primary and secondary outcomes compared to Nasonex® and placebo (0.77±2.44 vs 0.35±1.16, p=1.00 vs 0.17±0.82, p=0.01). Elonide is non-inferior to Nasonex (p=1.00) and superior to placebo (p<0.05). The highest side effects reported is Nasonex (n=14, 26%), followed by placebo (n=8, 16%) and Elonide (n=6, 12%); whereby headaches (n=9, 17%) and sore throat (n=9, 17%) were the most common. Elonide has similar efficacy to Nasonex® when compared to placebo in the treatment of AR in adults. Elonide is safe and tolerable with less side effects and no adverse side effects.

Keywords: Mometasone furoate; nasal spray, Nasonex, non-inferior; side effects

AB68

A Narrative Review on Mobile Health (mHealth) App for Stroke Care and Rehabilitation Intervention for Malaysia

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Abstract

The unseen circumstances during the COVID-19 pandemic in 2019 has caused a major global impact for health sectors. Malaysia, as many other countries, has faced and discovered a limitation in stroke care and rehabilitations in which there is an unavailability of digital interventions and approaches to accommodate the stroke community for such times. This missing factor has raised the stroke caregivers' burden and affecting the effectiveness of the nation's stroke care system. This narrative review summarises evidence about the digital health in stroke care and rehabilitation, especially for home-based care in Malaysia, including the current status and the availability of intervention modules. Multiple online academic journal sources including Google Scholar, ScienceDirect, Scopus, etc; and offline editorials were searched through January 2021 using keywords related to the review topics. The results are presented in summative paragraphs of reviews complementing subtopics in order to reach final conclusion and future directions. The subtopics are: (1) Understanding stroke and caregiver's burden; (2) Stroke in global digital health; (3) Stroke intervention modules for web-based and smartphone applications; and (4) Malaysia, mobile health (mHealth) and stroke intervention module. Evidence suggests that Malaysia still falls short in meeting the needs of the stroke community, and that stroke care must be made available through digital means.

Keywords: mHealth; stroke app; digital stroke care; stroke rehabilitation; stroke intervention modules

AB69

Elucidating Ki-67, Caspase-3 and Hematoxylin & Eosin (H&E) in Assessing the Integrity of Ovarian Follicle Following Ovarian Tissue Cryopreservation via Vitrification Method among Oncofertility Patients in University Hospital Setting

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Abstract

Ovarian tissue cryopreservation (OTC) is vital for preserving fertility in cancer patients, particularly prepubertal girls and women unable to delay chemotherapy. This study investigates ovarian tissue cryopreservation (OTC) techniques, particularly focusing on the emerging vitrification (VT) method in the context of oncofertility. Conducted at a university hospital, the research assesses ovarian tissue integrity and viability among oncofertility patients using histological techniques such as Hematoxylin and Eosin (H&E) staining and Immunohistochemistry (IHC) especially Ki-67 and caspase 3. A prospective cohort study was conducted at ARC Hospital, UKM, using VT samples. A cohort of 17 oncofertility patients, with a median age of 23.55 years and primarily diagnosed with lymphoma malignancy, had their ovarian tissues evaluated post-thawing. Results indicate that VT preserves a median of 75% intact follicles, with a correlation observed between follicle preservation and anti-Müllerian hormone (AMH) levels. While Ki-67 staining suggests good follicle viability in all samples, Caspase-3 staining in 36.4% of tissues hints at potential apoptosis. Furthermore, the study explores the impact of freezing duration and chemotherapy exposure on tissue integrity, finding no statistically significant correlations. The findings suggest that VT implementation for OTC in this local setting is satisfactory and aligns with global evidence, emphasising the need for future evaluations regarding hormonal and fertility function post-ovarian tissue transplantation (OTT) to consolidate OTC protocols in Malaysia.

Keywords: Ovarian tissue cryopreservation (OTC); oncofertility; vitrification (VT) hematoxylin and eosin (H&E) staining; immunohistochemistry (IHC)

POSTER PRESENTATIONS

AB2

Exploring Neurofilament Light Chain as a Diagnostic Tool in Multiple Sclerosis: Insights from Serum Analysis

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Abstract

Multiple sclerosis (MS) is a chronic inflammatory autoimmune disorder that impacts the central nervous system. Early detection and continual monitoring are imperative for optimizing patient care. However, the current lack of sensitive and specific biomarkers for early diagnosis and disease surveillance poses a significant challenge in MS management. Serum neurofilament light chain (sNfL) has garnered attention as a promising biomarker due to its correlation with axonal damage in MS. Therefore, this study aimed to investigate the potential of sNfL levels as a diagnostic tool for MS. Thirty-one newly diagnosed MS patients who had not received treatment and 31 healthy controls matched by age and gender were each given 2 mL blood samples. The serum was isolated from the blood samples through centrifugation. The sNfL levels were quantified using the latest single-molecule array (Simoa) technology, which offers unparalleled sensitivity and precision in detecting low concentrations of sNfL. Our results revealed significantly elevated sNfL levels in MS patients (mean (M)=13.85 pg/mL, standard deviation (SD)=6.73 pg/mL) compared to healthy control (M=4.50 pg/mL, SD=1.08 pg/mL) ($p < 0.001$), suggesting its potential diagnostic utility. Significantly, this study contributes to the growing evidence supporting the use of sNfL as a non-invasive biomarker for MS diagnosis, highlighting its promising potential as a diagnostic tool for MS. Importantly, the identification of

reliable biomarkers such as sNfL is crucial for early disease detection and personalized treatment strategies in MS.

Keywords: Multiple sclerosis; serum neurofilament light chain; MS biomarker; MS diagnosis; single-molecule array (Simoa) technology

AB5

Assessment of Health Symptoms of Indoor Fungal Exposure in Simulation Laboratories, Preclinical Building, Faculty of Medicine, Universiti Kebangsaan Malaysia

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Abstract

Exposure to fungal agents is linked to a wide range of health symptoms when mycotoxins in the air are inhaled, ingested, or absorbed through the skin. Research on indoor fungal exposures in teaching laboratories in Malaysia is limited. Therefore, this cross-sectional study aimed to investigate the types of indoor fungi and their associations with clinical symptoms. Questionnaires adopted from the modified Industry Code of Practice on Indoor Air Quality 2010 were given to undergraduate medical students who used the simulation laboratories. Then, passive air sampling was performed using 54 plates of Sabouraud Dextrose Agar with chloramphenicol exposed to the room air for 60 min and incubated for 28 days. Isolated fungi were identified phenotypically with the aid of an atlas of mycology. The most dominant fungi in the simulation laboratories were *Arthrographis kalrae, Penicillium* species, non-sporulating hyaline mold*, Curvularia boedijn* and *Cladosporium* species. The average estimated colony count was 32 CFU/m^2/h (good Index of Microbial Air Contamination). Out of 187 respondents, 92% had no health symptoms. The most common symptoms were stuffy nose (2.1%), skin rash/itchiness, headache, and cough (1.1% each). There was no significant association between health symptoms with fungal exposure according to demographic factors, smoking status, environmental conditions, and pre-existing health status. In conclusion, the presence of fungi in the

simulation laboratories is not significantly associated with any symptoms probably due to low fungal burden. Future research may target buildings that are obviously affected by fungal infestation.

Keywords: Fungi; fungal burden; indoor fungal exposure; airborne fungi; health assessment on fungi exposure

AB8

Giant Xanthogranulomatous Cholecystitis with Gastric Outlet Obstruction Mimicking Gallbladder Cancer

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Abstract

Xanthogranulomatous cholecystitis (XGC) is an unusual type of chronic inflammation of the gallbladder. Despite its benign nature, it can lead to more aggressive manifestations mimicking malignancy such as local infiltration, fistula, stricture, and perforation. Diagnosing XGC preoperatively remains a challenge for both the clinician and radiologists albeit with modern imaging techniques. This affects patient management as the direction of treatment differs with that of locally advanced gallbladder cancer. We report a case of an elderly patient presenting to us with gastric outlet obstruction secondary to XGC and discuss the challenges in the diagnosis and management of this great masquerader.

Keywords: Xanthogranulomatous, cholecystitis, gastric outlet obstruction, gallbladder cancer, inflammation

AB9

Wharton's Jelly Mesenchymal Stem Cells-Derived Small Extracellular Vesicles: A Preclinical Safety Study

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Abstract

As the therapeutic potential of small extracellular vesicles (sEVs) continues to be explored and expands, its safety evaluation in animals is an important component at the preclinical stage, preceding further efficacy studies in animal models and humans. The fetal part of Wharton's jelly mesenchymal stem cells (WJMSCs) at passage 3 were characterized before the sEVs were isolated using the tangential flow filtration method and characterized. Healthy male Sprague Dawley rats were used for the safety evaluation of sEVs. The control group was injected intravenously with normal saline and the treated group with pooled sEVs with a pre-determined concentration in normal saline every three weeks. Acute safety evaluation was conducted on day 14 post-injection and sub-chronic safety evaluation on day 90 post-injection. Weekly monitoring was performed for physiological parameters. Full blood count and serum biochemistry were evaluated every three weeks. Necropsy evaluation by the veterinarian and histopathological analysis by the pathologist were conducted. The full blood count and serum biochemistry profiles noted no significant differences between both groups. In the necropsy evaluation, mottled appearances at the edges of the liver were observed and there were significant percentage relative organ weight differences between both groups. Moderate inflammation and mild tubular changes were observed in the kidneys of both groups. Meanwhile, both groups showed severe inflammation in the lungs. A state of recovery was observed in the liver for inflammation and vascular congestion in both groups. Fetal WJMSCs sEVs intravenous injection on healthy male Sprague Dawley rats are deemed safe and can be safely evaluated for its therapeutic potential in animal models.

Keywords: Safety, Wharton's jelly, extracellular vesicles, tangential flow filtration, toxicity

AB13

Seropositive Anti-Desmoglein1 and Anti–Desmoglein-3 for Pemphigus Disease in Malaysia for the 1St Congress of Medicine and Health 2024

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Abstract
Pemphigus disease (PD) is a severe autoimmune disease impairing barrier functions of the epidermis and mucosa caused by autoantibodies (Ab) binding to the desmosomal adhesion molecules, desmoglein-1 (Dsg1) and desmoglein-3 (Dsg3). Detection of specific autoantibodies has become a substantial biomarker for PD diagnosis. This retrospective study aimed to determine the rate of seropositive autoantibodies for PD. Seven hundred and forty sera with PD diagnosis from the year 2020 to 2023 were analysed. Dermatology Mosaic BIOCHIPS coated with anti-Dsg1 and anti-Dsg3 by indirect immunofluorescence (IIF) were used. Out of 740 sera, a total of 183 (24.7%) were seropositive to at least one autoantibody with anti-Dsg1 being most prevalent. The mean age was (± 51.4) years ranging between 14-85 years old. In this study, 62 (8.4%) were seropositive to Dsg1 autoantibody, 22 (2.9%) to the Dsg3 autoantibody and 101 (13.6%) were positive to both autoantibodies. The current study indicates that there is a considerable rate of seropositive PD autoantibodies in our population with the frequency of anti-Dsg1 was the most prevalent in Malaysia.

Keywords: Pemphigus disease; desmoglein 1; desmoglein 3; autoantibodies; seropositive

AB15

The Effects of Immobilized Papain Treatment on Antioxidant Properties of Edible Bird's Nest (EBN)

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Abstract

The edible bird's nest (EBN), known for its nutritional and medicinal values, has attracted a lot of attention in recent years. Currently, enzymatic hydrolysis with papain, a protease enzyme, is used in its free form, to extract the active components of EBN. However, the effect of immobilized papain on EBN has not yet been investigated. The aim of this study was to investigate whether treatment with immobilised papain improves the antioxidant properties of EBN. Free papain (EBN I) and immobilized papain (EBN II) were used for enzymatic hydrolysis. EBN processed only by double boiling (EBNc) served as a control. DPPH and FRAP assays were performed to evaluate the antioxidant capacity of EBN samples. Meanwhile, MTT assay was performed to test the viability of human dermal fibroblasts (HDF) treated with EBN samples after UVB exposure. The results showed that EBN II has significantly higher DPPH scavenging activity, FRAP level and HDF viability compared to EBNc. The trend of the collected data showed that EBN II demonstrated higher DPPH scavenging activity, FRAP level, and HDF viability compared to EBN I, however it was not significant. These results suggest that hydrolysis of EBN with immobilised papain may be a viable method to extract an optimal amount of active components from EBN. However, further research is needed to elucidate the underlying mechanisms and optimise the treatment conditions to maximise the antioxidant effect of EBN by treatment with immobilised papain.

Keywords: Edible bird's nest; antioxidative properties; immobilized papain

AB16

Morphometry and Internal Structure of Ancient Bone Found in Gua Chawan, Malaysia

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Abstract

Bones of prehistoric humans, which have been preserved for thousands of years, are frequently distinguished by their robustness and strength. This indicates the formidable physical conditions and obstacles that prehistoric populations encountered. Investigating human skeletal remains yields significant knowledge regarding ancient civilization's health and lifestyle. This study analyze the morphometry and internal structure of three ancient skeletons excavated from Gua Chawan. These skeletons were radiocarbon dated at 7,000, 8,000, and 9,200 years before present. The objective of this study was to ascertain the exterior and internal attributes of the ancient skeletons discovered, employing a non-intrusive technique. Morphometric measurement of the individual bones, Dual-energy X-ray absorptiometry (DXA) for bone density analysis, and Micro-Computed Tomography (Micro-CT) for interior bone structure analysis are used. The skeletons were designated as GCR1, GCR2, and GCR3. Morphometric measurements, DXA and Micro-CT analysis were taken on the respective bones from each skeleton. Comparative analysis was performed between the data for the ancient human bones and their current counterparts revealed that the skeletal remains of ancient humans were of greater size compared to those of contemporary individuals. The bone mineral density (BMD) of ancient bones exhibited greater values compared to those of current bones. The trabecular bone microstructure of the ancient lumbar vertebra body exhibited a higher density compared to current bones. In conclusion, the prehistoric human bones have greater morphometric measures, bone density, and microstructural qualities compared current homo sapiens. However, this conclusion is contingent on a more exhaustive human skeleton study.

Keywords: Morphometry; prehistoric skeletal remain; Gua Chawan; bone mineral density; bone microarchitecture

AB20

Practices and Barriers of Irritable Bowel Syndrome Patients in Implementing the Low FODMAP Diet for Symptoms Management: A Qualitative Study

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Abstract

The low Fermentable Oligo-, Di-, Mono-saccharides And Polyols (FODMAP) diet (LFD) is a second-line dietary intervention for irritable bowel syndrome (IBS) patients involving FODMAPs restriction, reintroduction and personalisation. However, the application of this diet among Malaysian patients is limited. This study explored the practices and barriers of IBS patients implementing the LFD to manage their symptoms. Semi-structured, qualitative online interviews were conducted until data saturation was reached. All interview sessions were audio recorded and transcribed verbatim, and a thematic analysis was conducted. Ten IBS patients, with 60% (n=6) female and 40% (n=4) male, were interviewed. Most were Malays (n=6, 60%), followed by Chinese (n=4, 40%), with no Indian patients. Five themes regarding their practices emerged: 1. referral to a dietitian for early intervention; 2. follow-up frequency; 3. duration of FODMAPs restriction phase; 4. reference used to get information about FODMAPs; and 5. strategies on reintroduction. Meanwhile, six barriers were identified: 1. limitations of education materials; 2. lack of awareness of FODMAPs among healthcare professionals; 3. unclear details of the diet and food restrictions; 4. limited options while eating out; 5. accommodating household meals need; and 6. low self-disciplined. In conclusion, this study underscores the significance of enhancing education and early intervention strategies for IBS patients. The findings highlight the need to develop culturally adapted resources to support patients in implementing the LFD. Future studies should focus on evaluating the effectiveness of such resources and exploring the suitability, efficacy, and safety of the LFD specifically for Malaysian IBS patients.

Keywords: Malaysian; irritable bowel syndrome; low FODMAP diet; FODMAPs; qualitative study

AB21

Induction of the Wnt3a β catenin Signalling Pathway by Palm Tocotrienol Protects MC3T3-E1 Osteoblast from Dexamethasone Induced Cellular Apoptosis

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Abstract
Prolonged glucocorticoid treatment increases oxidative stress, triggers apoptosis of osteoblasts, and contributes to osteoporosis. Tocotrienol, as an antioxidant, could protect the osteoblasts and preserve bone quality under glucocorticoid treatment. The aim of this study was to determine the effects of tocotrienol on the Wnt3a β catenin signalling pathway in GC-treated MC3T3 E1 murine preosteoblastic cells. MC3T3 E1 cells were exposed to dexamethasone (150 μM), with or without palm tocotrienol (PTT; 0.25, 0.5, and 1 μg/mL). Cell viability was measured by the MTS assay. Alizarin Red staining was performed to detect calcium deposits. Cellular alkaline phosphatase activity was measured to evaluate osteogenic activity. Expression of osteoblastic differentiation markers was measured by enzyme-linked immunoassay. The results of this study showed enhanced matrix mineralization in the cells treated with 0.5 μg /mL PTT, especially on day 18 ($p<0.05$). Expression of Wnt3a, β-catenin, collagen 1α1, alkaline phosphatase, and osteocalcin were significantly increased in the PTT-treated groups compared to the vehicle control group It was most obvious at 0.5 μg/mL of PTT ($p<0.05$) and on day 6 of treatment. It was concluded that PTT maintains the osteogenic activity of the dexamethasone-treated osteoblasts by promoting their differentiation.

Keywords: Bone; differentiation; osteoporosis; tocotrienol; vitamin E; glucocorticoids

AB26

The Association of Power Napping with Obesity and Dietary Habits among the Age Group of 6-18 Years

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Abstract

Obesity, characterised by excessive fat accumulation, is defined as increased BMI by the WHO. Power naps, a short daytime sleep of 10 to 90 minutes, impact body metabolism and weight regulation. Research on power napping and its association with obesity is scarce. The study aims to explore the association between power napping and obesity using anthropometric measurements and usual dietary intake. This cross-sectional and comparative study was conducted among 300 children and young adolescents aged between 6 and 18 years. The data was collected through a standard questionnaire. Anthropometric measurements (weight, height, waist circumference, BMI) were taken according to WHO guidelines. Dietary history was obtained through a 24-hour usual dietary recall and a food frequency questionnaire. The Cronometer I was used for dietary analysis, and statistical analysis was performed using SPSS 28.0 software. The results showed that 36.30% of power nappers were of normal weight, 2.60% were overweight, and 2.30% were obese. However, 32% of non-nappers were of normal weight, 7.60% were overweight, and 6% were obese. A significant association was found between fibre, vitamin A, and calcium intake among power nappers and non-nappers ($p<0.05$). However, no association was found between power napping and obesity in the sample population ($p>0.05$). The interventions for paediatric obesity are limited, and all factors contributing to the risk of obesity, such as the circadian cycle, should be considered. Research also supports biphasic sleeping patterns. However, there are certain limitations regarding the topic at hand, indicating the need for further research.

Keywords: Power nap; obesity; dietary habits

AB31

Successful Laparoscopic Repair Duodenal Atresia in Monochorionic Diamniotic (MCDA) Twins

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Abstract

Duodenal atresia is a congenital duodenal obstruction that occurs in approximately one infant per 10,000 births. It is thought to occur due to incomplete dissolution of the duodenal epithelium which leads to permanent occlusion. It was reported to have an occurrence among siblings and family members, thus postulated to have some hereditary component. However, the occurrence among twins was extremely rare. Here, we reported our experience with successful laparoscopic repair of duodenal atresia in monochorionic diamniotic (MCDA) twins. Premature 32-week-old twin girls weighing 1.57kg and 1.63kg were diagnosed with duodenal atresia by a double bubble sign on antenatal ultrasonography and a plain abdominal X-ray after delivery. Once 1.8kg, laparoscopic duodenojejunostomy was performed successfully by passing atresia at the third portion of the duodenum. Both twins were allowed to feed on postoperative day 7 and achieved full feeding on postoperative day 12. Only 20 reported cases of twins with duodenal or intestinal atresia have been reported so far and the most common occurrence occurs in MCDA girls. They tended to have smaller bowel atresia than duodenal atresia. The postulation was due to abnormal blood supply in these MCDAs that led to ischemia of the bowel and thus atresia. So far, the occurrence of duodenal atresia at the same location has never been reported. Ours were also the first to report the usage of laparoscopic repair for both of the babies.

Keywords: Duodenal atresia; laparoscopic; paediatric surgeons; twin; training

AB32

Visualising Emergency Department Patient Flow: Insights from Constructivist Grounded Theory

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Abstract

Overcrowding and congestion lead to prolonged wait times within the Malaysian Emergency Departments (EDs). These issues are particularly pronounced during seasonal illnesses, and the challenge persists with inadequate solutions. This study used a qualitative approach, integrating a constructivist grounded theory framework and situational analysis. Data collection involved in-depth interviews with three ED physicians and one medical officer engaged in LEAN initiatives at Sungai Buloh Hospital. Recurring themes, patterns, and insights regarding patient flow management were identified. These were refined through real-time observations, capturing the process flow details and activities within the ED settings. The aim was to delineate stages from triage to discharge and identify factors that contribute to wait times. A visual model illustrating ED patient flow revealed parameters including arrival rates, triage processes, treatment durations, diagnostic testing, consultation times, and discharge procedures. Additionally, the model highlighted the potential impact of patient acuity levels, resource availability, staff allocation, and procedural bottlenecks on patient flow dynamics. Notably, the inclusion of pre-pending and pending admission delays emerged as novel factors that may contribute to short-term congestion and long-term overcrowding. The visual model provides a detailed representation of ED processes, facilitating bottleneck identification and optimisation. It provides a foundation for developing simulation models that can improve ED efficiency at Sungai Buloh Hospital. The research findings are significant for advancing theories related to ED wait times and represent a crucial step toward enhancing emergency care delivery in Malaysia.

Keywords: Emergency Department; patient flow; efficiency; patient care; healthcare quality

AB34

Serological Evaluation of Risk Factors for Exposure to Human Malaria in a Pre-elimination Setting in Peninsular Malaysia

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Abstract

Malaysia has reported no indigenous cases of *P. falciparum* and *P. vivax* for over three years. When transmission reaches such low levels, it is important to understand the individuals and locations where exposure risks are high, as they may be at greater risk in the case of a resurgence of transmission. Serology is a useful tool in low transmission settings, providing insight into exposure over longer durations than conventional malaria diagnosis. In this study, antibody responses to *P. falciparum* (i.e. PfAMA-1 and PfMSP-1_{19}) and *P. vivax* (i.e. PvAMA-1 and PvMSP-1_{19}) blood-stage antigens among 645 Orang Asli individuals from Kelantan were assessed by ELISA, while microscopy and molecular testing were used to determine parasite carriage by species. Age-adjusted antibody responses were analysed using a reversible catalytic model to calculate seroconversion rates (SCR). There was no evidence of recent transmission in the study areas, indicated by an absence of parasite infections in the community. The overall malaria seroprevalence was 38.8% for PfAMA-1, 36.4% for PfMSP-1_{19}, 2.2% for PvAMA-1 and 9.3% for PvMSP-1_{19}. Between study areas, the proportion of seropositivity varied significantly for any *P. falciparum* ($p < 0.001$) and any *P. vivax* ($p < 0.001$) antigens. Based on the SCR, there was a higher level of *P. falciparum* transmission than *P. vivax,* with heterogeneity in serological indices across study sites. This study provides useful insight into the spatial and demographic risk factors for human malaria during a period of low transmission in Peninsular Malaysia.

Keywords: Malaria; exposure; risk factor; seroconversion; Malaysia

AB38

Traversing the Parapharyngeal Domain; A Rare Case of a Basal Cell Adenoma in a Parapharyngeal Space

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Abstract

The majority of salivary gland tumours are of epithelial origin, including the rare basal cell adenoma. Basal cell adenoma is an uncommon benign tumour of the salivary glands that mainly develops in the parotid gland. Additional atypical locations comprise the oral cavity, lip, hard palate, and submandibular gland. There is a lack of reports on the occurrence of basal cell adenoma within the parapharyngeal region. Therefore, we present a case of a basal cell adenoma that manifested as a parapharyngeal growth. This patient is a 76-year-old gentleman who has been experiencing persistent throat discomfort for a duration of 3 months. An intraoral examination showed a left smooth and firm oropharyngeal swelling which pushes the uvula towards the contralateral side. His Computed Tomography scan showed a well-defined left parapharyngeal space cystic lesion extending from the nasopharynx to the oropharynx. Subsequently, he underwent surgical removal of the mass via a transcervical technique. The histological examination of the tumour revealed the presence of basal cell adenoma.

Keywords: Head and neck; parapharyngeal mass; salivary gland neoplasm; basal cell adenoma

AB39

CYP2C19 Metabolizer Status among Stroke Patients in a Malaysian Stroke Centre

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Abstract

Clopidogrel resistance appears to be a significant factor contributing to recurrent stroke. This resistance arises from the variability in hepatic CYP450 enzyme activity, particularly the loss of function of CYP2C19, which hinders the conversion of Clopidogrel into its active metabolite. Among Asians, nearly half possess at least one allele associated with reduced enzyme function. Ticagrelor, a non-reversible antagonist of P2Y receptors, emerges as a potential alternative to heighten the platelet inhibition. Our study aimed to determine the CYP2C19 metabolizer status among our acute stroke patients. This is a single centre, retrospective, cross sectional study done from September to December 2023. Patients admitted for acute stroke in Stroke Care Unit of Hospital Canselor Tuanku Muhriz were tested for CYP2C19 metabolizer status using serum samples. Among the 23 patients tested, only 10 (44.5%) exhibited normal metabolizer activity. The remaining 13 (56.5%) were classified as abnormal metabolizers, with 9 intermediate and 4 poor metabolizers, The mean±standard deviation age for the abnormal metabolizers was 61.92±5.64 years. More than half (69.2%) were of Chinese ethnicity. Notably, three of these patients had prior experience of recurrent strokes. Following the current stroke, 10 (76.9%) were discharged with Ticagrelor and none reported recurrent strokes within three months post-discharge. In our country, data regarding CYP2C19 metabolizer status and the efficacy of Ticagrelor in these patients is scarce. We anticipate that this study will lead to further research in this area and potentially reshaping the paradigm of treatment and enhancing the cost effectiveness in the management of acute stroke.

Keywords: CYP2C19; clopidogrel; ticagrelor; recurrent stroke

AB43

Biochemical and Clinical Characterisation of Tyrosinemia Type I in Malaysia: Our 7-Year Experience

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Abstract

Tyrosinemia Type I (TT1) or hepatorenal tyrosinemia (OMIM #276700) is an autosomal recessive tyrosine metabolism disorder. It is caused by deficiency of fumarylacetoacetate hydrolase (FAH) enzyme leading to toxic accumulation of succinylacetone (SAC). Urine SAC is a pathognomonic marker for TT1 which can be detected on gas chromatography mass spectrometry (GCMS). This 7-year retrospective study highlights the spectrum of TT1 among Malaysian patients. The clinical records of four newly diagnosed FAH deficiency patients (Patients A, B, C, D) were retrospectively reviewed from 2017-2023. Clinically, most patients presented with hepatomegaly, jaundice and increased liver enzymes. Fanconi renal tubular acidosis, radiological features of Rickets and multiple small liver lesions discovered from MRI findings are among the rare features. Urine organic acid (UOA) analysis with the detection of SAC and further confirmed with SAC quantitation by GCMS using an internal standard is a diagnostic tool. One patient had a strong history of family consanguinity with a positive history of sibling's death due to TT1. Marked increase excretion of SAC with presence of other liver metabolites in UOA analysis by semi-quantitation was seen in all patients. SAC quantitation by GCMS revealed that the value of quantitated SAC ranges from 14.82 to 452.94 umol/L before NTBC treatment initiation. Detection of urinary SAC by semi-quantitative UOA analysis using GCMS is pivotal for early diagnosis of TT1. Additionally, quantitative SAC measurement by GCMS plays a crucial role in monitoring the efficacy of the NTBC therapy, facilitating timely interventions to prevent severe liver failure and potential liver transplantation.

Keywords: Tyrosinemia Type I; succinylacetone; gas chromatography mass spectrometry; FAH deficiency; NTBC treatment

AB45

Emerging Role of Transoral Robotic Surgery in Treating HPV-Associated Oropharyngeal Cancer in Malaysia

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Abstract

The incidence of Human Papillomavirus (HPV) related oropharyngeal squamous cell carcinoma (OPSCC) has been on the rise and is associated with a more favourable prognosis compared to the traditional smoking-related oropharyngeal cancer. This necessitates innovative treatment strategies to minimise morbidities, such as transoral robotic surgery (TORS) which offers a minimally invasive approach to the oropharynx. However, in Malaysia, TORS is a relatively new technology, and sceptics are concerned regarding its feasibility, cost-effectiveness, and outcomes. Four cases of HPV-associated OPSCC, treated using TORS were reviewed retrospectively and discussed. TORS allows precise surgery via better tumour visualisation, reduces morbidity secondary to mutilating open neck surgery and enables chemoradiotherapy treatment de-escalation. Early experience showed TORS is a feasible and valuable tool for treating HPV-associated OPSCC in Malaysia.

Keywords: Carcinoma; HPV; oropharynx; robotic surgery; transoral.

AB47

Modulatory Effects of Ginger Extract on Ageing and Cognitive Improvement in Animal Model

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Abstract

Ageing is able to reduce the brain's spatial memory and cognitive function due to naturally occurring inflammatory reactions affecting memory and exploratory behaviour. Ginger is being studied for its neuroprotective properties to ameliorate the consequence of brain ageing. This study aimed to determine the effect of ginger extract on cognitive function by behavioural tests such as Sucrose Preference Test (SFT), Morris Water Maze (MWM) and Open Field Test (OFT) before and after treatment. Twenty male Sprague-Dawley rats aged three months were divided into treated and control groups. They were given treatment for 3 months via oral gavage daily with 200 mg/kg/day of *Zingiber officinale* Roscoe (ginger) extract and distilled water for the treated and control groups, respectively. OFT measured exploratory behaviour, SFT measured anhedonia behaviour, and MWM measured visuospatial learning. Results showed that the sucrose preference index increased in the control group after treatment ($p<0.05$) while maintained in ginger-treated

rats. OFT did not show any significant findings. In MWM, the time taken to find the platform decreased from day 2 to day 5 of training compared to day 1 in both groups after treatment ($p<0.05$). However, no change was observed in the number of crossing over the platform for both groups of rats. The entrance latency towards the other zone and target zone was highest on day 3 and then decreased on subsequent days for both groups ($p<0.05$). In conclusion, deterioration in cognitive function may occur due to age, which could be alleviated by ginger treatment.

Keywords: Ageing; ginger; cognitive function

AB49

Bioinformatics and Data Science Approaches in Discovering Potential Biomarkers in Focal Epilepsy: A Scoping Review Protocol

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Abstract

Focal epilepsy, with its diverse aetiology and heterogeneous clinical manifestations, represents a significant challenge for diagnosis and treatment. The discovery of reliable biomarkers for focal epilepsy has the potential to revolutionize patient care, enabling early detection, accurate diagnosis, and personalized treatment strategies. This review explores how bioinformatics and data science can use robust tools and methods to analyse many different data types, including genomics, transcriptomics, proteomics, and neuroimaging, to uncover potential biomarkers for focal epilepsy. This review will proceed through several stages: (1) identifying the research question, (2) finding relevant studies through electronic databases, and (3) selecting studies based on inclusion criteria. Three independent reviewers will search and screen studies for inclusion. Any discrepancies will be resolved through discussion with other reviewers. Next, (4) data will be extracted and categorized using a pretested form. Subsequently, (5) the data will be collated and summarized, and (6) the results will be reported, focusing on biomarkers related to epileptogenesis and seizure localization. This protocol aims to create a structure to map and summarize findings from previous studies that combine bioinformatics and data science methods. This can uncover new biomarkers for diagnosing, predicting outcomes, and treating focal epilepsy. It will assist researchers in developing personalized treatment approaches. The results of this review will be valuable for applying discovered biomarkers in clinically managing focal epilepsy. Additionally, the knowledge will be shared through presentations at pertinent scientific conferences.

Keywords: Epileptogenesis; focal epilepsy; bioinformatics; data sciences; biomarkers

AB50

Effects of Ginger (Zingiber officinale Roscoe) Extract on Hepatic Lipidomic Profiles of Aged Rats

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Abstract

Changes in lipid metabolism occur during aging, potentially increasing susceptibility to conditions like fatty liver disease and impacting liver regeneration. Zingiber officinale Roscoe (Ginger) has been utilized as an anti-aging supplement due to its purported ability to reduce oxidative stress and inflammation. However, the effects of ginger on lipid profiles during aging remains largely explored. This study aimed to determine the lipid profiles in the liver of aged rats supplemented with ginger extract through lipidomic analysis. Young (3 months old), adult (12 months old) and old rats (21 months old) were administered with ginger extract at a dose of 200 mg/kg BW/d for a duration of 90 days. Hepatic lipid extraction was performed using the Folch method, followed by LCMS data acquisition. Mass spectra underwent pre-processing using MS-DIAL and statistical analyses were performed using MetaboAnalyst. Alterations in hepatic diglycerides, triglycerides, ceramides, sphingomyelins and phosphatidylethanolamines were observed in aged animals, while ginger supplement changed the levels of fatty acyls and triglycerides. Specifically, lysophosphatidylethanolamine, semino monogalactosyldiacylglycerol and N-acyl glycyl serine were correlated with lipid functions. Further investigation is warranted to elucidate the mechanisms by which these lipids modulate the aging process and the impact of ginger supplementation. They could potentially serve as biomarkers for monitoring liver aging and assessing the efficiency of ginger supplementation.

Keywords: Aging; ginger; liver; lipidomics; LCMS

AB52

Prevalence of *Acanthamoeba* Infections in Corneal Scrapings: A Retrospective Analysis of Samples from Hospital Canselor Tuanku Muhriz

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Abstract

Acanthamoeba spp. is a parasitic protozoa able to cause infection of the eye and brain. Infection of the eye may result in a severe, potentially blinding infection of the cornea. Effective management of the infection requires accurate and early diagnosis, however, it is usually considered after all common causes of keratitis have been investigated. This study aimed to determine the prevalence of *Acanthamoeba* infections in corneal scrapings collected from patients presenting with keratitis symptoms at HCTM. We conducted a retrospective study analysis of laboratory data from corneal scrapings obtained from patients suspected of Acanthamoeba keratitis (AK) between 2004 to 2019. All specimens were cultured specifically for *Acanthamoeba* spp. using non-nutrient agar with an overlay of heat-killed *Escherichia coli*. Positive identifications were confirmed through microscopic examination. Out of 65 corneal scraping analysed, 9 were positive for *Acanthamoeba*, resulting in a prevalence rate of 13.8%. All cases were contact lens user and a higher prevalence was noted among female patients. The prevalence of AK at HCTM underscores the importance of awareness and prompt diagnosis in high-risk groups, particularly contact lens user. This study highlighted the need for rigorous diagnostic protocols and making sure all keratitis cases are screened for *Acanthamoeba* infections especially when patients do not respond to the standard treatment procedures or when no other pathogenic agents have been detected.

Keywords: *Acanthamoeba* spp.; corneal scraping; keratitis 3; HCTM

AB54

A Rare Case of Tongue Invasive Fungal Infection in an Immunocompetent Patient

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Abstract

Invasive fungal infection usually associated with immunocompromised condition, and its occurrence in immunocompetent patients is rare. We present a patient who is immunocompetent without apparent predisposing factors, was diagnosed with an invasive fungal infection of tongue. He presented with a chronic ulcer on the tongue following an unintentional bite during a meal. Examination showed an ulcer on the left lateral border of the tongue with a rolled-out margin and an indurated border, mimicking squamous cell carcinoma. Histopathology examination from the biopsy of the tongue ulcer revealed the presence of fungal yeasts, with differential diagnosis of candida spp., histoplasma spp., and cryptococcal spp. There were non-necrotizing granulomas that extend deep into the muscle layer. He was treated with oral fluconazole for 3 months and advised to stop smoking. He subsequently had a complete resolution of the lesion without any complications.

Keywords: Invasive fungal infection; tongue ulcer; immunocompetent; antifungal treatment, squamous cell carcinoma

AB57

Evaluation of Agreement between Operon Simple Rotavirus (RoV) Test and JusChek Combo Rapid Test Cassette

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Abstract

Rotavirus rapid diagnostic tests (RDTs) are frequently utilized for patient management and epidemic screening. There have been reports of varying test accuracy and cross-reactivity, which may have an impact on management outcomes. In this study, the sensitivity and specificity of commercial rapid chromatographic immunoassay kits for the detection of rotavirus were evaluated. Thus, the study aimed to evaluate and compare the analytical performance of the JustChek Rapid Test Cassette with the Operon Simple Rotavirus Test as a hospital standard. Stool samples were collected from every acute diarrhea patient aged <12 years old who was admitted at UKM Specialist Children's Hospital, Malaysia, from December 2023 to May 2024. Upon comparison, both tests showed positive percent agreement and exhibited heterogeneous comparative diagnostic performance in their sensitivity and specificity. It was demonstrated that the RoV rapid test cassette kits evaluated in this study could be used as an alternative method for the rapid screening of rotavirus in fecal specimens, especially during the acute gastroenteritis outbreak season. In addition, such tests may be effective for the identification and clinical management of rotavirus infection in children and the prevention of disease progression.

Keywords: Pediatrics; gastroenteritis; rotavirus; point-of-care; detection

AB59

Unveiling Leptospirosis Masquerading as Acute Tonsillitis: A Diagnostic Challenge

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Abstract

Leptospirosis is a common zoonotic disease caused by a spirochete bacterium. Leptospira interrogans typically presents with a spectrum of symptoms ranging from mild febrile illness to severe manifestations such as Weil disease and pulmonary haemorrhage syndrome. However, atypical presentations can confound diagnosis, leading to delayed or missed recognition of the infection. Herein, we present a case of leptospirosis initially mimicking acute exudative tonsillitis, posing a diagnostic dilemma for clinicians. A previously healthy 19-year-old male presented with the sudden onset of a sore throat, fever, odynophagia, and cervical lymphadenopathy. Clinical examination revealed inflamed tonsils with exudates, leading to a provisional diagnosis of acute tonsillitis. Despite initial antibiotic therapy, the patient's condition did not improve with a persistent fever. Further investigation, including serological tests, confirmed leptospiral infection as the underlying cause. This case highlighted the importance of considering leptospirosis in the differential diagnosis of acute febrile illnesses, even in the absence of typical symptoms. Heightened awareness among clinicians, coupled with appropriate diagnostic testing, is crucial for the timely recognition and management of leptospirosis, thereby preventing potential complications and improving patient outcomes.

Keywords: Leptospira; diagnosis; tonsillitis; febrile illness; sore throat

AB61

Huge Facial Artery Aneurysm: Unveiling the Time Bomb Within

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Abstract

Facial artery aneurysms, though rare, pose significant diagnostic and therapeutic challenges due to their potential for rupture and associated morbidity. We present a case of a 70-year-old female with a long-standing facial artery aneurysm successfully managed through surgical excision. The patient presented with a painless, pulsatile mass over the left cheek, which had gradually increased in size over 10 years. Imaging studies confirmed the presence of a facial artery aneurysm measuring 5 x 4 x 3 cm. She underwent angioembolization, followed by an open, meticulous dissection and excision of the aneurysm. Postoperative recovery was uneventful, with the resolution of symptoms and restoration of facial aesthetics. This case highlights the significance of multidisciplinary collaborations between head and neck surgery, vascular surgery, and interventional radiology in achieving favorable outcomes. Enhanced awareness of this condition and its management strategies is essential for optimizing patient care and minimizing potential complications.

Keywords: Facial artery; aneurysm; angioembolisation; angiography; pseudoaneurysm

AB62

Exploring Systemic Photoprotection: The Efficacy of Oral *Centella asiatica* Supplementation Against UVB-Induced Skin Damage in Mice

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Abstract

Ultraviolet (UV) rays emitted by the sun are a major environmental factor contributing to oxidative stress, leading to skin damage commonly referred to as photoaging, which may further predispose individuals to various skin cancers. While topical sunscreens are traditionally used to mitigate these effects, their protection is inherently limited to applied areas, they possess a short half-life, and they necessitate frequent reapplications, thus diminishing their practicality and overall effectiveness. Oral photoprotection presents a promising alternative by potentially offering systemic benefits and overcoming the localized limitations of topical applications. *Centella asiatica*, known locally in Malaysia as 'pegaga', is rich in antioxidants, and known for its capabilities to neutralize free radicals induced by oxidative stress. In our study, we explored the oral photoprotective properties of *Centella asiatica* in a mouse model subjected to UVB irradiation. The findings from our research indicated that oral supplementation with *Centella asiatica* significantly enhanced skin hydration and effectively prevented skin darkening. These outcomes were rigorously assessed using a Dermalight machine, which provided quantitative data on the improvements in skin condition. These promising results suggest that *Centella asiatica* could serve as an effective oral photoprotective agent, offering a novel approach to skincare that bypasses the limitations of traditional sunscreens.

Keywords: *Centella asiatica*; photoprotection; UVB radiation; oxidative stress; skin aging

AB63

Metabolomic studies of blood samples from newborn infants showed distinctly different profiles between those receiving parenteral and enteral nutrition.

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Abstract

Current nutritional recommendations for preterm infants are extrapolated from the intrauterine accretion rate and breast milk constituents, but it is unclear whether this nutrient and calorie advice meets their extrauterine metabolic needs. Metabolomic studies enable comprehensive metabolite assays in biofluids, and if a nutritional intervention shows a profile that may relate to clinical outcomes, we studied the metabolomic profiles of very preterm infants receiving parenteral nutrition (PN) and moderately preterm to term infants receiving only enteral nutrition (EN). Applying untargeted metabolomics to serum samples obtained from infants in the first week of life (preterm-PN, n = 64; preterm-EN, n = 47; term-EN, n = 49), principal component analysis revealed a distinct separation in metabolite clusters, indicating global metabolomic differences between the PN and EN groups. Of the 147 metabolites, 100 are differentially expressed metabolites that are statistically significant ($p<0.05$). Fold change analysis showed at least a 17-fold increase in tyrosine, linolenic acid, and vitamin B6 derivatives, with a 7-fold decrease in tryptophan derivatives in the PN compared to EN groups. In conclusion, our preliminary findings indicated that preterm infants receiving PN have a distinctly different metabolic profile, especially in some amino acids, fatty acids, and B-vitamins, than those infants who are enterally fed. This suggests a pivotal need to reassess the current nutritional recommendations to narrow the metabolomic gap between PN and EN-fed infants. Future work should also focus on the relationship between metabolomics and nutrition for individualised care of neonates of different gestations, sexes, and co-morbidities that are likely to exert inter-individual variability on growth outcomes.

Keywords: Metabolomic; parenteral nutrition; enteral nutrition; neonates; serum

AB65

Effects of Ejiao on Body Weight, Joint Width and Grip Strength of Ovariectomised Female Rats with Osteoarthritis Induced with Monosodium Iodoacetate

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Abstract

Postmenopausal women are disproportionately affected by osteoarthritis but the preventive agents available are limited. Ejiao, a traditional Chinese Medicinal product derived from the donkey's skin, could be a potential protective agent against osteoarthritis but its efficacy needs to be validated. Hence, this study aims to determine the effects of Ejiao in ovariectomized rats with osteoarthritis induced with monosodium iodoacetate (MIA). Ovariectomised female Sprague-Dawley rats (3 months old) were randomised into 6 groups (n=8/group). Osteoarthritis was induced with intra-articular injection of MIA one month after ovariectomy, except for the sham group. Ejiao (0.26, 0.53 and 1.06 g/kg/day p.o.) or glucosamine sulphate (250 mg/kg/day p.o.) supplementation was initiated one day after osteoarthritis induction for 5 weeks. Equivolume of distilled water was given to the sham and negative control group. The body weight, joint width and grip strength of the rats were monitored weekly in the study. A significant increase in the percentage change of joint width was noted in all groups with osteoarthritis compared to the sham group ($p<0.05$), except for rats fed with medium-dose Ejiao ($p>0.05$). No significant differences in the percentage change of body weight and grip strength were observed among the groups ($p>0.05$). As a conclusion, medium-dose Ejiao might suppress joint swelling in ovariectomised rats with osteoarthritis. Further studies are needed to investigate the effects of Ejiao on joint structural and inflammatory changes to prove its efficacy in preventing osteoarthritis.

Keywords: Cartilage; colla corii asini; gelatin; joint; traditional Chinese medicine

AB70

Detection of Subclinical Keratoconus Using Combined Multimodal Imaging of Corneal Tomography, Biomechanics and Pachymetry

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Abstract

Background: The detection of keratoconus has garnered significant interest in the subclinical phase, particularly given the growing acceptance of refractive surgical procedures.

Purpose: This study aimed to investigate the use of combined multimodal imaging for the detection of subclinical keratoconus (SKC). Methods: This prospective study included 137 eyes (keratoconus, 48; SKC, 36; and normal, 53). Subclinical keratoconus eyes were defined as corneas with no clinical evidence of keratoconus and suspicious topographic and tomographic features. Following a complete ophthalmic examination, topographic and tomographic corneal assessment was performed via Pentacam HR, corneal biomechanical evaluation was performed using Corvis ST, and anterior segment pachymetry examination was performed using Cirrus OCTA. Results: Most parameters of the Pentacam HR, Corvis ST, and Cirrus OCTA showed a statistically significant difference between the SKC and normal groups. The combined predicted model to detect SKC in normal subjects in Pentacam HR showed an area under the curve (AUC) of 0.959, combined Corvis ST (0.978), and Cirrus OCTA (0.904). However, the combined predictive model of Pentacam HR and Corvis ST showed an even higher distinguishing ability to detect SKC, with an AUC of 0.990. Conclusion: All three multimodal imaging modalities showed ideal diagnostic performance for SKC detection. In clinical practice, we propose the use of a combination of the Pentacam and Corvis ST to enhance the accuracy of refractive surgery screening

Keywords: Subclinical keratoconus; detection; pentacam HR; corvis ST; cirrus OCTA

AB71

Phoenixin in Metabolic Processes: Insights from a Systematic Scoping Review

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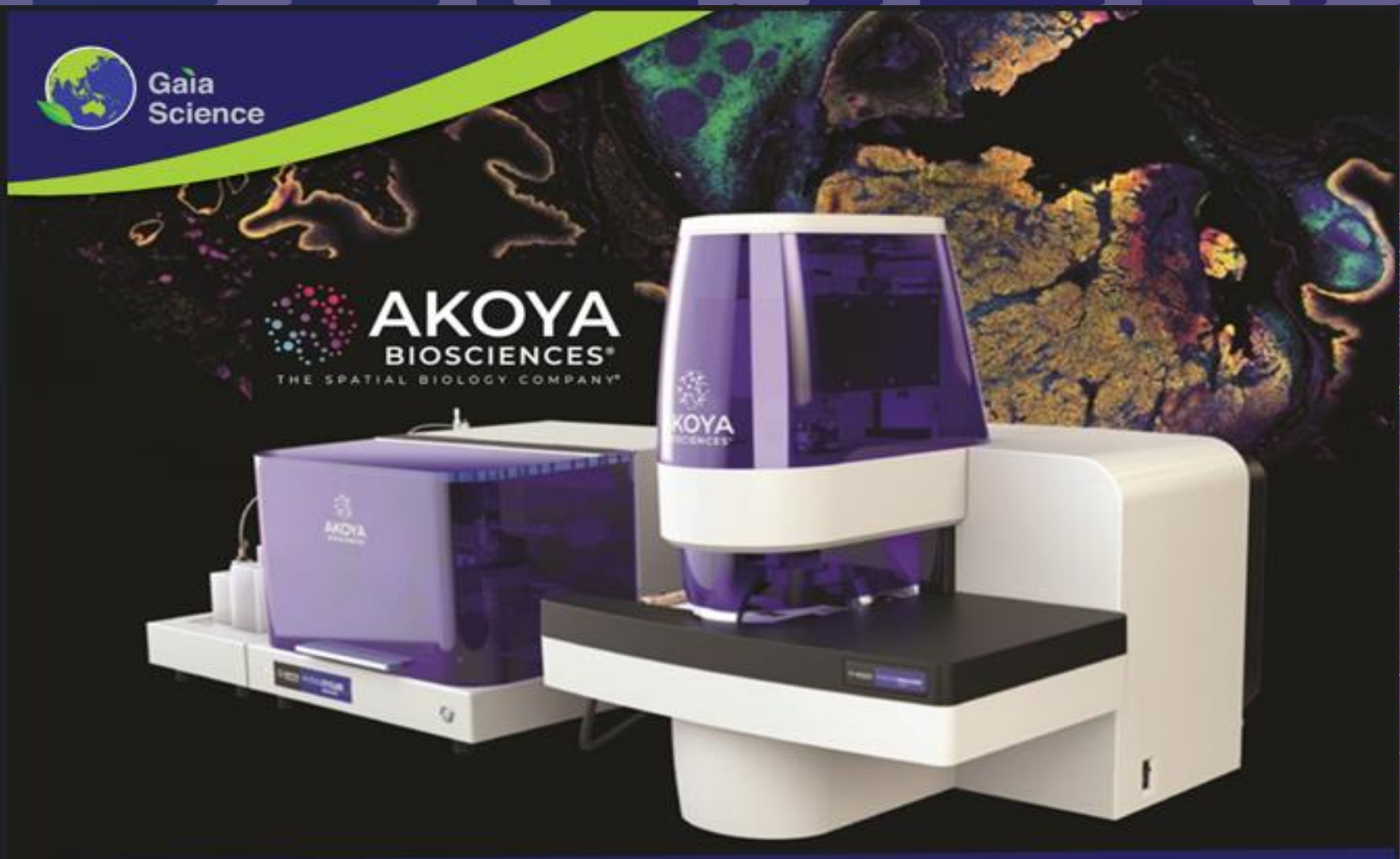
Abstract

PNX, a neuropeptide derived from the small integral membrane protein 20 (SMIM20), has two main isoforms: PNX-14 and PNX-20. Both isoforms impact various physiological processes, including insulin secretion, cardiovascular function, fat cell formation, and regulation of reproductive hormones. This study investigates the diverse role of phoenixin (PNX) in metabolic regulation, synthesising findings from 24 studies conducted between 2013 and 2024. PNX affects metabolic pathways through its receptor, G protein-coupled receptor 173 (GPR173), activating intracellular signalling cascades such as the cAMP-protein kinase A (PKA) pathway and CREB phosphorylation. PNX-14 and PNX-20 show unique effects on metabolic processes, suggesting potential therapeutic applications for obesity, type 2 diabetes mellitus, and gestational diabetes mellitus. Despite significant advancements, there are still gaps in understanding PNX's precise mechanisms and therapeutic potential, necessitating further research. This review offers a comprehensive overview of current knowledge, emphasising PNX as a promising target for future research into metabolic disorders and therapeutic interventions to improve human health.

Keywords: Phoenixin; metabolism; human neuropeptide; metabolic



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