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GLOBAL HEALTH SCIENCES CONFERENCE 2020 (GHSC 2020)

"Pandemic Challenges in Health Sustainability"

ABSTRACT BOOK

12 DECEMBER 2020

UNIVERSITI SULTAN ZAINAL ABIDIN
TERENGGANU, MALAYSIA

Editors :
Wan Rohani Wan Taib
Kamarul Amin Abdullah
Naresh Bhaskar Raj
Mohd Nizam Zahary

CO ORGANIZER:

Organized by: Faculty of Health Sciences, UniSZA

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PREFACE

The world is facing global health threats. These challenges arise from outbreaks of communicable disease epidemics and pandemics such as like COVID-19, measles and diphtheria; increasing reports in obesity and sedentary lifestyles to the health impacts in several serious chronic diseases and cancers due to genetic and environmental factors. The biggest unprecedented challenge is how to sustain the health improvement through effective intervention strategies and measurement of economic effects.

Although many lifestyle issues have been implicated since 1990s, the government and non-government organizations take vigorous actions in conducting programs and activities to keep health care costs down. With this advanced era, high-throughput and dedicated piece of research would be benefited in providing scientific evidences to ensure long-term accessibility of key data on population health such as cancer incidence, infectious disease monitoring and surveillance and health service to embark prevention strategies that requires regulatory framework from multidisciplinary field of expert. Substantial advances in methodologies have provided insights for better understanding in disease mechanism and disease control that may serve greater effectiveness for health. Therefore, The Global Health Sciences Conference 2020 (GHSC 2020) is organized with a theme “Pandemic Challenges in Health Sustainability” that suits with our current global health issue.

WELCOME MESSAGE

PROFESSOR DR. HAFIZAN BIN JUAHIR
ACTING DEPUTY VICE CHANCELLOR (RESEARCH AND INNOVATION), UniSZA

Assalamualaikum w.b.t and good day to everyone,

Firstly, I must congratulate Faculty of Health Sciences and its collaborators from Indonesia and Thailand for organizing Global Health Sciences Conference 2020 (GHSC 2020) with the theme "Pandemic Challenges in Health Sustainability". GHSC 2020 integrates experts in multidisciplinary fields in health sciences to foresee the risk and challenges during the pandemic. The main purpose of this conference is to discuss and share the best ideas that we can muster to improve and sustain a good health globally. Therefore, the implementation is by embarking a systematic strategy to improve health care setting based on scientific evidences through innovate new ideas, improve assess in health care, readjust our processes and improve practice of health care that can be gained from this conference. The health care provided must also be efficient and effective to sustain an excellent health.

Finally let me take this opportunity to thank all the keynote speaker, plenary speakers and members of the organising committee for the excellent preparations and arrangements for this conference and most importantly the participants who have made this conference happen.

I hope all participants can take the opportunity to learn and know each other via oral and e-poster presentation. I am sure all participants will take the opportunity to collaborate not just in their field but all across their discipline through our multidisciplinary themes mentioned above. We hope that this conference will foster the exchange of new ideas and promote new contacts between researchers on health sciences fields. We wish you an inspirational and fruitful conference

Thank you

With best wishes

WELCOME MESSAGE

PROFESSOR DR. SAKINAH BINTI HARITH
THE DEAN, FACULTY OF HEALTH SCIENCES, UniSZA

Assalamualaikum warahmatullahi wabarakatuh and Greetings,

Alhamdulillah, all praises and gratitude be to Allah SWT for allowing us to gather here, although via online, for this auspicious event. It gives me a great pleasure to warmly welcome all participants to the Global Health Sciences Conference 2020 (GHSC 2020) organised by the Faculty of Health Sciences, Universiti Sultan Zainal Abidin (UnSZA), in partnership with Rajamangala University of Technology Thanyaburi, Thailand (RMUTT), Universitas Teuku Umar, Aceh, Indonesia (UTU), Universitas 'Aisyiyah, Yogyakarta, Indonesia (UNISA), Politeknik Kesehatan Yogyakarta, Indonesia (POLKESYO), and Sekolah Tinggi Ilmu Kesehatan, Syedza Saintika Padang, Indonesia (STIKES).

The theme of the conference, "Pandemic Challenges in Health Sustainability" is very relevant and pertinent in the current scenario. GHSC2020 creates a great platform to discuss current landscape and next steps for sustainability in health setting. The conference will bring together leading academicians, medical students, clinicians, public health professionals, health care specialists, health care workers, health economists, researchers, scientists, health workers, policy makers, social workers and other related professionals. Moreover, GHSC 2020 is a global gathering with renowned speakers, presentations, panel discussions and valuable networking opportunities. This international conference is, therefore, an earnest effort to realize our dream of sharing the knowledge in healthcare towards healthy communities. This first edition of the GHSC2020 promises to be very inspiring and we highly appreciate that so many researchers contributed to the rich and varied conference program.

Hence, it is our goal to provide a premier interdisciplinary platform for researchers, students, professionals and educators presenting and discussing the cutting-edge development and challenges in health sciences. I certainly hope that this conference will be a useful forum to garner diverse scholars in disseminating the research experiences in health sciences and develop collaborations between institutions. I would like to express my sincere appreciation to the committee members for their outstanding contributions. My appreciation also goes to all speakers for their willingness to share their idea, and to all participants for making the effort to participate in this conference. We hope that you will find the conference productive, informative and enjoyable. To all sponsors, government agencies, organisations, corporate bodies and personal contributors, we deeply appreciate your assistance and generosity. Let us hope that this conference will strengthen our collaboration to ensure that we will continue to address the environmental challenges in a collective manner.

Thank you. Wassalamu'alaikum warahmatullah.

WELCOME MESSAGE

DR WAN ROHANI BINTI WAN TAIB
THE CHAIRMAN OF GLOBAL HEALTH SCIENCES CONFERENCE 2020 (GHSC 2020)

On behalf of the organizing committee, I take great pleasure in welcoming delegates and guests to Global Health Science Conference 2020 (GHSC 2020) at Universiti Sultan Zainal Abidin, Terengganu, Malaysia on 12th December 2020 via virtual meeting by Webex Event. This conference is organized by the Faculty of Health Sciences, Universiti Sultan Zainal Abidin (UniSZA) in collaboration with five education institutions: Universitas Teuku Umar, Aceh, Indonesia (UTU), Universitas 'Aisyiyah, Yogyakarta, Indonesia (UNISA), Politeknik Kesehatan Yogyakarta, Indonesia (POLKESYO), Sekolah Tinggi Ilmu Kesehatan, Syedza Saintika Padang, Indonesia (STIKES) and Rajamangala University of Technology Thanyaburi, Thailand (RMUTT).

As you all know that health is dominated by infectious diseases and also by non-communicable diseases (heart disease, diabetes, cancer, and mental-health condition) which pose challenges to global health sustainability. Hence, the theme for the GHSC 2020 has been rightly chosen as 'Pandemic Challenges in Health Sustainability'. Conference presentations and discussions will relate to one or more of the following areas: Bridging the gap in biomedical research, featuring new trends of research in nutrition and dietetics, recent advancements of research in medical imaging and exploring novel researches in rehabilitation.

The GHSC 2020 aims to provide a platform for all academicians, clinicians, researchers, healthcare providers and students from within and outside Malaysia to share their thoughts and experience and develop collaborative research networking. The conference features invited speakers (keynote and plenaries) and free-papers presentations (both oral and eposter), which would provide participants with ample opportunities for discussions and exchange of knowledge. It is our hope that the GHSC 2020 will be a remarkable success with your active participation and support, and you will leave the conference with fond memories and expanded networking for future research collaborations.

Last but not least I would like to thank all members of the various sub-committees who have shown great commitment in making sure the smooth running and success of this conference.

Wassalam. Best Wishes

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SCIENTIFIC PROGRAMME

Time (Malaysian time)	Activity (12th December 2020, Saturday)			
7:30 am - 8:00 am	Connection testing Internet connection, projector, camera, mic			
8:00 am - 8:30 am	Registration, join a meeting via Webex			
8:30 am - 8:45 am	***Opening Ceremony*** Dr Asheila Meramat Master of Ceremony			
8:45 am - 9:00 am	***Opening Remarks*** Prof Dr Hafizan Juahir Deputy Vice Chancellor (Research and Innovation), UniSZA			
9:00 am - 9:45 am	***Keynote Speaker*** Prof Dr Tony Merriman University of Otago, New Zealand Moderator : Dr Wan Rohani Wan Taib			
	Video on company advertisement			
	Concurrent Session			
	THEME A Moderator : Dr Kan Su-Yin	**THEME B Moderator : Miss Chin Yi Ying**	**THEME C Moderator : Mrs Azlinawati Ali**	**THEME D Moderator : Mr Vijayamurugan Eswaramoorthi**
10:15 am - 1.00 pm	5 presenters	5 presenters	5 presenters	5 presenters
	Q&A	Q&A	Q&A	Q&A
	5 presenters	5 presenters	5 presenters	5 presenters
	Q&A	Q&A	Q&A	Q&A

	3 presenters	3 presenters	3 presenters	5 presenters
	Q&A	Q&A	Q&A	Q&A
2.00 pm - 2.40 pm	3 presenters	6 presenters	4 presenters	**e-Poster session**
	Q&A	Q&A	Q&A	
2.40 pm–4.00 pm	**e-Poster session**			
4.00 pm - 4.40 pm	**THEME A - Plenary:** Prof. Dr. Yeo Chew Chieng (Universiti Sultan Zainal Abidin, Malaysia) Moderator : Dr Chew Ching Hoong	**THEME B - Plenary:** Mrs Nurul Huda Ibrahim (Ministry of Health Malaysia) Moderator : Mrs Karimah Fakhriah Ismail	**THEME C - Plenary:** Assoc Prof Dr Peter Kench (The University of Sydney, Australia) Moderator : Dr Kamarul Amin Abdullah	**THEME D - Plenary:** Prof Enas Shahine (Sultan Abdul Aziz Humanitarian City, Riyadh, Saudi Arabia) Moderator : Dr Naresh Bhaskar Raj
4.45 pm - 5.00 pm	**Closing with award ceremony**			

SCIENTIFIC SCHEDULE

THEME A: Bridging the Gap in Biomedical Research

(Moderator: Dr Kan Su-Yin)

TIME	THEME A
10.00 – 10.10 AM	INTRODUCTION
10.10 – 10.20 AM	IS THE EXPRESSION OF ANTI-NEONATAL NAV1.5 ANTIBODIES (ANTI-NNAV1.5-AB) IN THE SERUM AFFECTED BY DIFFERENT STAGES AND SUBTYPES OF BREAST CANCER?
10.20 – 10.30 AM	STYRYLPYRONE DERIVATIVE FROM GONIOTHALAMUS UMBROSUS INHIBITS EARLY STAGE OF VIRUS REPLICATION
10.30 – 10.40 AM	ESTABLISHMENT OF HUMAN NEUROBLASTOMA CELL-LINE (SK-N-SH) AS AN IN VITRO MODEL OF MORPHINE ADDICTION.
10.40 – 10.50 AM	EVALUATION OF IMMUNOPHENOTYPIC EXPRESSION OF PLASMA CELL MYELOMA PATIENTS AND ITS ASSOCIATION WITH PROGNOSTIC FACTORS
10.50 – 11.00 AM	HIGH DOSE OF TESTOSTERONE REDUCES EXPRESSION OF AVB3 INTEGRIN IN THE ENDOMETRIUM OF RATS DURING UTERINE RECEPTIVITY
11.00 – 11.15 AM	Q & A session
11.20 – 11.30 AM	A PRELIMINARY STUDY ON THE EFFECTS OF STINGLESS BEE HONEY (SBH) ON FASTING BLOOD GLUCOSE IN STREPTOZOTOCIN (STZ)-INDUCED DIABETIC RAT MODELS
11.30 – 11.40 AM	AIRWAY REMODELING AND PREGNANCY HORMONES ALTERATION IN OVA-INDUCED ASTHMA MOUSE MODEL
11.40 – 11.50 AM	TUBERCULOSIS (TB) TREATMENT OUTCOMES AMONG TB PATIENTS IN KELANTAN; 5 YEARS RECORD REVIEW
11.50 – 12.00 PM	ARRAY-BASED COMPARATIVE GENOMIC HYBRIDISATION FOR THE IDENTIFICATION OF SUBMICROSCOPIC CHROMOSOMAL ABNORMALITIES IN PATIENTS WITH UNEXPLAINED INTELLECTUAL DISABILITY/MULTIPLE CONGENITAL ANOMALIES
12.00 – 12.10 PM	BIOFILM INHIBITION OF PERIODONTAL PATHOGEN BY PROBIOTIC CELLS AND SUPERNATANT
12.10 – 12.25 PM	Q & A session
12.25 – 12.35 PM	ANTIMICROBIAL SUSCEPTIBILITY PROFILES AND PREVALENCE OF INDUCIBLE CLINDAMYCIN RESISTANCE IN METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) CLINICAL ISOLATES FROM TERENGGANU, MALAYSIA
12.35 – 12.45 PM	PERCEPTIONS TOWARDS FORMS OF INTIMATE PARTNER VIOLENCE AMONG PREMARITAL YOUNG ADULTS IN KELANTAN
12.45 – 12.55 PM	INVESTIGATION OF THE CYTOTOXICITY AND CELLULAR UPTAKE OF BISMUTH OXIDE NANOPARTICLES IN MCF-7 CELL LINE
1.00 – 2.00 PM	Q & A session
2.00 – 2.10 PM	THE EFFECT OF AUTOGENOUS, NON-VASCULARISED PERIOSTEUM TRANSPLANTATION ON ALLOGRAFT BONE GRAFTING FOR LARGE CORTICAL LOAD-BEARING BONE DEFECT - A RABBIT MODEL
2.10 – 2.20 PM	DOSE RESPONSE RELATIONSHIP OF OVALBUMIN ON PREIMPLANTATION EMBRYONIC GROWTH IN ASTHMA MOUSE MODEL
2.20 – 2.30 PM	VIRGIN COCONUT OIL (VCO) ACCELERATED WOUND HEALING PROCESS IN DIABETIC ULCER
~~2.30 – 2.40 PM~~	~~RECOMBINANT EXPRESSION OF PLASMODIUM KNOWLESI APICAL MEMBRANE ANTIGEN 1 (PKAMA1 DI II) USING TWO PICHIA PASTORIS STRAINS~~
2.40 – 4.00 PM	e-Poster session

4.00 PM	**Plenary speaker** **Prof. Dr. Yeo Chew Chieng (Universiti Sultan Zainal Abidin, Malaysia)** **Moderator : Dr Chew Ching Hoong**
4.45 PM	**Announcement of Winners**

THEME B: Featuring new trends of research in nutrition and dietetics

(Moderator: Ms Chin Yi Ying)

TIME	THEME B
10.00 – 10.10 AM	INTRODUCTION
10.10 – 10.20 AM	UTILIZATION AND PERCEPTION OF COMPLEMENTARY AND ALTERNATIVE THERAPIES (CATS) AMONG OBESE AND OVERWEIGHT INDIVIDUALS IN A MALAYSIAN PUBLIC UNIVERSITY
10.20 – 10.30 AM	MICROBIOLOGICAL STATUS OF FOOD CONTACT SURFACE (FCS) AND FOOD HANDLERS HAND (FHH) AT SELECTED CAFE AND RESTAURANT IN LONG BEACH REDANG ISLAND, TERENGGANU
10.30 – 10.40 AM	LC-MS IDENTIFICATION OF PHENOLIC COMPOUNDS, ANTIOXIDANT AND ANTI-INFLAMMATORY ACTIVITY OF FREEZE-DRIED MELON MANIS TERENGGANU PEEL EXTRACTS
10.40 – 10.50 AM	KNOWLEDGE, ATTITUDES AND PRACTISE OF MOTHER'S CHILDREN FEEDING AND THEIR RELATIONSHIP WITH THE NUTRITIONAL STATUS OF FISHERMEN'S CHILDREN UNDER 5 YEARS OF AGE IN SELECTED DISTRICTS OF TERENGGANU
10.50 – 11.00 AM	APPLICATION OF NEWLY DEVELOPED CARDIOVASCULAR DISEASE (CVD) RISK CALCULATOR AMONG HEALTHCARE PROVIDERS IN PREDOMINANTLY MALAY POPULATION STATION IN MALAYSIA
11.00 – 11.15 AM	Q & A session
11.20 – 11.30 AM	CALCIUM INTAKE IN RELATION TO KNOWLEDGE AND BELIEFS OF OSTEOPOROSIS IN FEMALE UNDERGRADUATE STUDENTS OF UNIVERSITI SULTAN ZAINAL ABIDIN (UNISZA)
11.30 – 11.40 AM	HOUSEHOLD FOOD INSECURITY AND ITS DETERMINANT AMONG PREGNANT WOMEN ATTENDING ANTENATAL CARE IN SELANGOR
11.40 – 11.50 AM	ASSOCIATION BETWEEN WEIGHT STATUS AND BODY IMAGE PERCEPTION AMONG FEMALE ADOLESCENTS IN TERENGGANU
11.50 – 12.00 PM	KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS SALT INTAKE AMONG HYPERTENSIVE RESIDENCE AND ITS ASSOCIATED FACTORS
12.00 – 12.10 PM	ASSOCIATION BETWEEN ORTHOREXIA NERVOSA TENDENCY ON HEALTH RELATED-QUALITY OF LIFE AMONG HEALTH SCIENCE STUDENTS IN TERENGGANU
12.10 – 12.25 PM	Q & A session
12.25 – 12.35 PM	ASSOCIATION OF CAFFEINE CONSUMPTION AND COGNITIVE PERFORMANCE AMONG UNDERGRADUATE STUDENTS AGED 18 TO 25 YEARS OLD
12.35 – 12.45 PM	ASSOCIATION BETWEEN ORTHOREXIA NERVOSA AND PSYCHOLOGICAL STATUS AMONG HEALTH SCIENCE STUDENTS IN TERENGGANU
12.45 – 12.55 PM	SOMATOTYPE AND CARDIOVASCULAR DISEASE RISK FACTORS AMONG FEMALE UMT STUDENTS WITH DIFFERENT BMI CATEGORIES
1.00 – 2.00 PM	Q & A session
2.00 – 2.10 PM	DIET QUALITY AS THE RISK FACTORS OF DIABETES MELLITUS TYPE 2
2.10 – 2.20 PM	ASSOCIATION OF COGNITIVE FRAILTY, NUTRITIONAL STATUS AND RISK OF MALNUTRITION AMONG INSTITUTIONALIZED ELDERLY.
2.20 – 2.30 PM	RELATIONSHIP BETWEEN CARBOHYDRATE AND ENERGY INTAKE WITH OBESITY AMONG ADOLESCENT IN KUALA TERENGGANU

2.30 – 2.40 PM	THE RELATIONSHIP BETWEEN INTAKE FE AND FAMILY SUPPORT WITH INCIDENCE OF ANEMIA IN PREGNANT WOMEN
2.40 – 2.50 PM	NUTRITIONAL STATUS AND BODY IMAGE PERCEPTION OF ADOLESCENTS IN SPECIAL REGION OF YOGYAKARTA PROVINCE, INDONESIA
2.50 – 3.00 PM	EVALUATION OF USABILITY OF MALAYSIA DIABETES PREVENTION PROGRAM (MYDIPP) MOBILE APP – A PILOT STUDY
3.00 – 4.00 PM	e-Poster session
4.00 PM	Plenary speaker Mrs Nurul Huda Ibrahim (Ministry of Health Malaysia) Moderator : Madam Karimah Fakhriah Ismail
4.45 PM	Announcement of Winners

THEME C: Recent advancements of research in medical imaging

(Moderator: Mrs Azlinawati binti Ali)

TIME	THEME C
10.00 – 10.10 AM	INTRODUCTION
10.10 – 10.20 AM	A COMBINED APPROACH BETWEEN ENHANCEMENT AND SEGMENTATION OF DIGITAL MAMMOGRAMS TO IMPROVE BREAST CANCER DETECTION
10.20 – 10.30 AM	LUMBOSACRAL RADIOGRAPHY EXAMINATION TECHNOLOGY OF LATERAL WEDGE PROJECTION IN THE LOW BACK PAIN CASE
10.30 – 10.40 AM	ACUTE ABDOMEN RADIOGRAPHIC EXAMINATION TECHNIQUES IN ILEUS CASE
10.40 – 10.50 AM	THORAX CT SCAN EXAMINATION TECHNIQUES IN CARDIAC CASE
10.50 – 11.00 AM	CT SCAN EXAMINATION TECHNIQUE FOR THORACIC SCAN WITH NSCLC CASE (NON SMALL CELL LUNG CANCER)
11.00 – 11.15 AM	Q & A session
11.20 – 11.30 AM	HEAD CT-SCAN EXAMINATION TECHNIQUES IN CEREBROVASCULAR ACCIDENT (CVA) BLEEDING CASE
11.30 – 11.40 AM	RADIOGRAPHIC EXAMINATION TECHNIQUES IN NON-COOPERATIVE PATIENTS USING DEXTRA TEMPORAL FRACTURE CASE
11.40 – 11.50 AM	NON-CONTRAST HEAD CT SCAN EXAMINATION TECHNIQUES IN CASES OF BRAIN TUMORS
11.50 – 12.00 PM	THE EXAMINATION TECHNIQUE OF CRANIUM OF CERVICAL ROOT SYNDROME
12.00 – 12.10 PM	THORAX EXAMINATION PROCEDURE WITH RIBS FRACTURE CLINICAL
12.10 – 12.25 PM	Q & A session
12.25 – 12.35 PM	EVALUATION OF A MICRO CT SCAN SYSTEM BASED ON DIGITAL IMAGE CORRELATION PROFILE OF MULTIPLE RADIOGRAPHS
12.35 – 12.45 PM	THE USE OF DIGITAL FUNDUS IMAGE ANALYSIS OF RETINAL VESSEL DIAMETER USING FIJI IMAGE J IN DIABETIC RETINOPATHY RODENT MODEL
12.45 – 12.55 PM	AN OVERVIEW OF MYPOCKET GFR APP
1.00 – 2.00 PM	Q & A session
2.00 – 2.10 PM	IMPACT OF THE COVID-19 PANDEMIC ON RADIOGRAPHY AND RADIOTHERAPY PRACTICE
2.10 – 2.20 PM	THE EFFECT OF ELECTRIC FLOWS VARIATION OF X-RAY TUBE (MA) ON FREE RADICAL FORMATION IN WATER
2.20 – 2.30 PM	ANALYSIS OF RADIATION DOSE ON EYES ON HEAD CT EXAMINATION
2.30 – 2.40 PM	RIGHT TROCHLEAR NERVE PALSY AS AN UNCOMMON SYMPTOM OF ARACHNOID CYST

2.40 – 4.00 PM	e-Poster session
4.00 PM	Plenary speaker Assoc Prof Dr Peter Kench (The University of Sydney, Australia) Moderator : Dr Kamarul Amin Abdullah
4.45 PM	Announcement of Winners

THEME D: Exploring novel researches in rehabilitation

(Moderator: Mr Vijayamurugan Eswaramoorthi)

TIME	THEME D
10.00 – 10.10 AM	INTRODUCTION
10.10 – 10.20 AM	RELIGIOSITY AND PSYCHOSOCIAL IMPACTS OF ISLAMIC INABAH REHABILITATION PROGRAMME FOR DRUG ADDICTION IN MALAYSIA
10.20 – 10.30 AM	ORAL-DDK RATES IN MALAYSIAN-MALAY SPEAKERS
10.30 – 10.40 AM	COMMUNICATION CHALLENGES AND THEIR IMPACT AMONG ADOLESCENT SIBLINGS OF CHILDREN WITH AUTISM
10.40 – 10.50 AM	EFFECTS OF GAME-BASED TASK-ORIENTED CIRCUIT TRAINING ON FUNCTIONS AMONG STROKE SURVIVORS IN HOSPITAL RAJA PEREMPUAN ZAINAB II: A PILOT STUDY
10.50 – 11.00 AM	BONE METABOLISM MARKERS IN RESPONSE TO THREE AND SIX SESSIONS OF LOW ENERGY EXTRACORPOREAL SHOCKWAVE THERAPY IN INDIVIDUALS WITH POST ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION
11.00 – 11.15 AM	Q & A session
11.20 – 11.30 AM	EFFECTS OF PHYSICAL TRAINING AND BEHAVIORAL STRATEGIES TOWARDS MUSCLE STRENGTH AND MENTAL HEALTH IN THE ELDERLY
11.30 – 11.40 AM	THE EFFECT OF FAMILY PSYCHOEDUCATION ON TUBERCULOSIS TREATMENT ADHERENCE OF CHILDREN IN INDONESIA
11.40 – 11.50 AM	ASSOCIATION BETWEEN INDEX-TO-RING FINGER LENGTH RATIO (2D:4D) AND WOMAC OSTEOARTHRITIS INDEX IN WOMEN WITH KNEE OSTEOARTHRITIS
11.50 – 12.00 PM	FACTORS INFLUENCING INSTRUMENTAL ACTIVITIES OF DAILY LIVING (IADL) DISABILITY AMONG ELDERLY ATTENDING HEALTH CLINICS IN KELANTAN
12.00 – 12.10 PM	THE EFFECT OF GENDER ON BAL EXZZ SUBJECTIVE VISUAL VERTICAL (SVV) FINDING AMONG HEALTHY ADULTS
12.10 – 12.25 PM	Q & A session
12.25 – 12.35 PM	DOES BODY MASS INDEX (BMI) AFFECTS THE PERFORMANCE IN PRAYER BY MUSLIMS?
12.35 – 12.45 PM	SACRAL TUBERCULOSIS: NEVER IGNORE BUTTOCK PAIN
12.45 – 12.55 PM	PSYCHOLOGICAL EFFECT OF CRITICAL ILLNESS EXPERIENCE ON FAMILY MEMBERS IN THE INTENSIVE CARE UNIT (ICU): A SCOPING REVIEW
12.55 – 1.05 PM	SUBJECTIVE VISUAL VERTICAL (SVV) FINDING IN HEALTHY ADULTS: COMPARISON BETWEEN CLOCKWISE (CW) AND COUNTERCLOCKWISE (CCW) CONDITION
1.00 – 1.20 PM	Q & A session
1.20 – 2.10 PM	BREAK
2.10 – 4.00 PM	e-Poster session

4.00 PM	**<u>Plenary speaker</u> Prof Dr Enas Shahine (Sultan Abdul Aziz Humanitarian City, Riyadh, Saudi Arabia) Moderator : Dr Naresh Bhaskar Raj**
4.45 PM	**Announcement of Winners**

KEYNOTE SPEAKER

PROFESSOR DR. TONY R MERRIMAN
Department of Biochemistry
University of Otago
New Zealand

Prof. Dr. Tony R Merriman qualified his PhD from University of Otago, New Zealand before he pursued for his postdoctoral at University of Oxford, United Kingdom. He is a research professor at University of Otago particularly focusing in genetic basis of gout and rheumatoid arthritis. His expertise has awarded him with several awards including a James Cook Research Fellowship in Health Sciences and Fulbright New Zealand Scholar Award to undertake research in the United States in gout study among African-Americans at University of Alabama Birmingham.

THE ROLE OF THE ENVIRONMENT IN GOUT ONSET AND OUTCOMES

Gout results from monosodium urate crystal deposition in synovial tissues in chronic hyperuricemia. The crystals can cause a severe innate immune system response, the gout flare. Risk is conferred by the impact of environmental exposures on an individual who has inherited a threshold of genetic risk variants. Specifically these modifiable and non-modifiable risk factors include diet and genetic variants of, for example, renal transporters of urate that are a primary cause for gout. Deeper understanding of causal predisposing factors in individuals may shed light on individuals' susceptibility to gout and potentially lead to improved preventive practices in personalized medicine.

PLENARY SPEAKER 1

PROFESSOR DR. YEO CHEW CHIENG
Faculty of Medicine
Universiti Sultan Zainal Abidin
Malaysia

Prof. Dr. Yeo Chew Chieng obtained his first degree in Microbiology from National University of San Diego, California in 1992. He later completed his PhD in Microbiology from National University of Singapore in 1997 and postdoctoral fellow from the same university. His expertise includes microbial genomics, molecular microbiology, microbial biotechnology, antimicrobial resistance and bacterial toxin-anti toxic systems. He is currently a professor at Faculty of Medicine, UniSZA with outstanding research and publication that entitled him with many appointments at national and international level.

WHOLE GENOME SEQUENCING IN CLINICAL MICROBIOLOGY: AN *ACINETOBACTER* PERSPECTIVE

The advent of high-throughput DNA sequencing technologies fifteen years ago (in late 2005) revolutionized the life sciences in ways that could not be imagined at the turn of the millennium. Sequencing microbial genomes is now considered neither challenging nor prohibitively expensive. Whole genome sequencing (WGS) will soon become a dominant technology in routine diagnostic microbiology laboratories as it has already been widely reported and accepted in the literature for applications such as isolate identification and characterization, antimicrobial resistance (AMR) profiling and establishing sources of recurrent infections along with other epidemiological investigations. Nevertheless, WGS has yet to be widely adopted in clinical microbiology despite its huge potential. Here, the results of the WGS of *Acinetobacter baumannii* isolates obtained from the main tertiary hospital in Terengganu, Malaysia over a period of five years (2011 – 2016) are presented. *A. baumannii* is a Gram-negative nosocomial pathogen of concern due to its unique ability to acquire and develop resistance to all classes of antimicrobials. The World Health Organization (WHO) has even listed carbapenem-resistant *A. baumannii* as a top priority pathogen in urgent need of new antimicrobials. WGS showed that the multidrug resistant Global Clone 2 (GC2) lineage of *A. baumannii* was endemic in the Terengganu hospital in 2011 – 2012 but that has been supplanted by a variety of other clones in 2015 – 2016. WGS also led to the discovery of a large ca. 170 kb potentially transmissible plasmid that encode the New Delhi metallo-β-lactamase-1 (NDM-1) and OXA-58 carbapenemase along with a host of other resistance genes in a clinical isolate of *A. baumannii* and its close relative, *A. nosocomialis.* Finally, current limitations of WGS such as its existing costs, the need of decent computational infrastructure and training of laboratory staff in bioinformatics, will be discussed.

PLENARY SPEAKER 2

PROFESSOR DR. ENAS MOHAMED SHAHINE

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Prof. Dr. Enas Mohamed Elsayed Shahine currently is the chairman and consultant Physiatrist at the Sultan Bin Abdul Aziz Humanitarian City, Riyadh, Kingdom of Saudi Arabia. She was a research fellow at NIH, Maryland, USA in human motor control section. Her educational background is MBBCh from Faculty of Medicine, Master Degree in Physical Medicine Rheumatology and Rehabilitation, MD Degree in Physical Medicine, Rheumatology and Rehabilitation from Alexandria University, Egypt. Her fields of specialisation include stroke rehabilitation, traumatic brain injury, spinal cord injury and musculoskeletal disorders. Her research interest is on physical medicine, rheumatology and rehabilitation of neurologic patients. She has supervised post graduate students in her field. She has been appreciated with various awards for her work. Prof.Dr. Enas has published many research articles in indexed journals.

RESEARCHES IN REHABILITATION DURING COVID-19 PANDEMIC

The whole globe synergistically guided by WHO indulged in International Surveillance Project for COVID-19 epidemiology in each country that gives the first of its kind in human history. This epidemic has changed the healthcare norms including research part.

During the pandemic when social distancing is required, health care system needs to explore approaches for rehabilitation researches as both COVID-19 and non- COVID-19 patients need to receive adequate support and care. COVID-19 pandemic tremendously affected the current medical and rehabilitation research studies globally. Almost all studies in any given country were either put on hold or have to adapt for COVID-19 precautions like social distancing. Such effect will for sure reflect on the number of scientific papers and topics.

Meanwhile COVID-19 shocked the research scientific community, most of researches were focused on understanding the viral disease, its clinical presentation in addition to epidemiological data related to viral infectivity. Another angle was directed to management of this disease and its acute, sub-acute and chronic manifestations not to mention that large number of research centers was indulged in vaccine programs for this disease.

Rehabilitation researches are essential if effective and efficient rehabilitation responses to the COVID-19 pandemic are to be developed as so many areas of improvement are still ahead. COVID-19 has given humanity a great lesson for medical and rehabilitation management guidelines, prevention strategies and research power.

PLENARY SPEAKER 3

ASSOCIATE PROFESSOR DR. PETER KENCH
Faculty of Medicine and Health
University of Sydney
Australia

Peter Kench is a Associate Professor at the Discipline of Medical Imaging Science in University of Sydney. Areas of teaching include nuclear medicine professional practice topics. Leadership roles include Course Director of the Bachelor of Applied Science (Diagnostic Radiography) and Director of the Medical Image Optimisation and Perception Group (MIOPeG). Dr Peter Kench is a member of the physics and biomodelling team and MIOPeG. Peter has also been a recipient of the Faculty of Health Science Award for Excellence in Teaching.

EMISSION COMPUTED TOMOGRAPHY OPTIMISATION IN NUCLEAR MEDICINE

Nuclear Medicine uses radiopharmaceuticals to image molecular and physiological changes to diagnose and stage disease, as well as monitoring the success of cancer treatment or the recurrence of disease. Theranostics is a nuclear medicine technique where a pharmaceutical is labelled with either therapy or imaging radionuclides. Therefore, allowing the planning, monitoring and treatment of cancer, prostate or neuroendocrine.

The introduction hybrid imaging brought together functional and morphological patient information in the form of single-photon emission computed tomography (SPECT) or positron emission tomography (PET) with computed tomography (CT) or magnetic resonance (MR) imaging, e.g. SPECT/CT, PET/CT and PET/MR. The additional information from CT and MR enhances SPECT and PET image quality and diagnostic accuracy.

The development of new photon detector technology and camera design has resulted in significant improvements in the sensitivity and spatial resolution SPECT and PET systems allowing faster imaging and lower radiation exposure to patients. It is now possible to perform techniques using SPECT that was previously only possible with PET, e.g. whole body, dynamic and quantitative imaging. Therefore, improving both the sensitivity and specificity of these procedures. Total body PET has recently been performed for the first time, allowing a significant decrease in patient dose and the study of whole-body kinetics of radiopharmaceutical distribution. The field of nuclear medicine continues to be advanced based on developments in radiochemistry and engineering, thus providing opportunities for imaging scientist to optimise imaging protocols for better patient outcomes.

PLENARY SPEAKER 4

MADAM NURUL HUDA BINTI IBRAHIM
Family Health Development Division
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Mrs Nurul Huda Ibrahim, Senior Principal Assistant Director (Dietetic) in Family Health Development Division, Ministry of Health Malaysia, Putrajaya. She has 22 years experiences as dietitian in Ministry of Health, 16 years in dietetic clinical providing medical nutrition therapy for burn and trauma, surgical and varies medical disciplines. Currently, she serves in primary healthcare, contributed to non-communicable diseases program and guidelines such as Malaysian Healthy Plate Guidelines, Malaysian Recommended Nutrient Intake, Salt Reduction Strategies and iFitEr program module. Recently, she led Dietetic and Food Services Unitbat Quarantine and Low Risk Covid-19 Treatment Centre (PKRC) MAEPS Serdang.

PANDEMIC COVID-19: IMPACT, CHALLENGES AND WAY FORWARD IN NUTRITION AND DIETETIC

On March 11, 2020, the World Health Organization (WHO) characterized COVID-19 as a pandemic, pointing to over 3 million cases and 207,973 deaths in 213 countries and territories. In the other hand, almost one fourth (22%) of the world's population is estimated to have an underlying condition that increases their vulnerability to COVID-19; most of these conditions are Noncommunicable diseases (NCDs). NCDs, notably cardiovascular diseases, cancers, diabetes and chronic respiratory diseases, are the leading causes of death and disability globally, affecting more people each year than all other causes combined. NCDs are responsible for over 70% of all deaths and approximately 80% of all years lived with disability globally. With the rapid spread of COVID-19 across the world, the ability of countries to address and respond to NCDs has been impacted. The COVID-19 virus has created not only a healthcare crisis but also an economic. Furthermore, economic crisis will indirectly impacted health and nutritional status due to lack of physical activities and healthy diet. Impact of covid-19 on nutritional status divided into 3 phases which is societal, admission to general ward and admission to ICU. Managing Covid-19 required strict compliance to Standard Operating Procedure (SOP) to prevent infection among healthcare provider, including PPE requirements, minimal contact time, physical distancing, avoiding overcrowded in healthcare facilities. The virus has caused broad disruptions to health services while at the same time drawing attention to countries' NCD burden, as those living with NCDs are at increased risk of becoming severely ill with the virus. WHO reported disruptions in NCDs services due to the response to the pandemic in 122 (75%) out of 163 countries. The pandemic has severely disrupted diagnostic, treatment, rehabilitation and palliation services for people living with NCDs. In order to sustain our services, its required creative and innovative approach particularly the usage of technologies. Exploring and expanding digital health in providing our services is timely. Are we ready for that?

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Scope: Bridging the Gap in Biomedical Research

BO_1

Is the expression of anti-neonatal Nav1.5 antibodies (anti-nNav1.5-Ab) in the serum affected by different stages and subtypes of breast cancer?

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Abstract

Over the years, the augmented expression of neonatal Nav1.5 (nNav1.5) has been associated with breast cancer metastasis. However, the immunogenicity of the protein in accordance to breast cancer metastasis has not been explored yet. The aim of the current study was to provide preliminary findings on the immunogenicity of nNav1.5 by detecting its antibodies in the serum of patients with respect to the breast cancer stages and subtypes. Sixty-four participants were recruited for this study: breast cancer patients (n=32) and healthy participants (n=32). Approximately 3 ml of blood was withdrawn, and the serum was separated. An in-house enzyme linked immunosorbent assay (ELISA) was developed to detect the presence of antibodies against nNav1.5 (anti-nNav1.5-Ab). There were four phases involved in the development of the assay. The sensitivity and specificity of the assay was 87.5%. The difference in the expression of anti-nNav1.5-Ab between the early invasive and advanced stages was significant (*P*=0.011*****). In addition, highly metastatic subtypes such as TNBC and HER2 enriched, exhibited higher expression of anti-nNav1.5-Ab compared to Luminal A/B subtypes that are less prone to metastasize. However, the difference in the expression of anti-nNav1.5-Ab among the three subtypes was not statistically significant (*P*=0.759). In line with breast cancer metastasis, advanced stage and subtypes with enhanced metastatic capacity exhibited higher expression of anti-nNav1.5-Ab which reflects the aberrant expression of nNav1.5 and its contribution to the diagnosis. The detection of antibodies against nNav1.5 within the serum highlights the immunogenicity of the protein.

Keywords: Breast cancer, anti-neonatal Nav1.5 antibodies, enzyme linked immunosorbent assay

BO_2

Styrylpyrone derivative from *Goniothalamus umbrosus* inhibits early stage of virus replication

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Abstract

This study aimed to determine the antiviral potentials of styrylpyrone derivative (SPD) against dengue virus serotype 2 (DENV-2). SPD was prepared from *Goniothalamus umbrosus* root. Cytotoxicity of SPD towards Vero cells was evaluated using MTT assay while EC_{50} value was determined by focus forming unit reduction assay (FFURA). The mode-of-action of SPD was characterized using the virucidal, attachment, penetration and the time-of-addition assays. Docking experiments with SPD molecule and the DENV envelope (E) protein was also performed. Cytotoxicity assay confirmed that SPD was not toxic to Vero cells, even at the highest concentration tested. The compound exhibited DENV-2 focus unit formation inhibition, with an EC_{50} of 2.18 µM. We further revealed that SPD reduced viral infectivity and inhibited DENV-2 from attaching and penetrating to the cells. SPD was observed to be most effective when added at the early stage of DENV-2 infection. Docking experiments showed that SPD binds to DENV E protein. Based on obtained data, SPD has the ability to alter DENV replication cycle at early stage of virus replication.

Keywords: Styrylpyrone derivative, *Goniothalamus umbrosus*, dengue virus serotype 2, antivirus, foci forming unit reduction assay

BO_3

Establishment of human neuroblastoma cell-line (SK-N-SH) as an in vitro model of morphine addiction.

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Abstract

Morphine is a schedule II-controlled substance that used to allow the diminution of intra-operative, post-operative or chronic pain. However, its usage is limited due to addiction and overdose liabilities. Morphine was observed to cause tolerance, dependence and withdrawal in human. Justification: to date lack of scientific evidence of morphine addiction was carried out by using specific single human neuroblastoma cell-line (SK-N-SH). Therefore, this study was performed to establish the morphine addiction model in this cell line. The cells were exposed to morphine for 24 hrs prior to treatment with methadone, as an anti-withdrawal drug for subsequence 24 hours. The cytosolic fraction of the cell was used in different objectives including receptor affinity, withdrawal properties, endocytic machinery, desensitisation or internalisation and cellular adaptation. The result shows that morphine and methadone bind only to the μ-opioid receptor. The morphine-treated cells were observed to increase the expression of addiction markers, have a low rate of the endocytic machinery, cause desensitisation of receptor and reduce cellular adaptation. Those changes by morphine were normalised by the treatment of methadone. As a whole, it is postulated that neuroblastoma cell line, SK-N-SH, can be used as an in-vitro model to demonstrate morphine addiction prior to animal and human testing.

Keywords: Morphine addiction, receptor affinity, withdrawal properties, endocytic machinery, desensitisation, internalisation, cellular adaptation; methadone.

BO_4

Evaluation of Immunophenotypic Expression of Plasma Cell Myeloma Patients and its Association with Prognostic Factors

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Abstract

Neoplastic plasma cell expresses aberrant markers which differ from normal plasma cell was postulated to carries prognostic significance. This study aimed to determine the proportion of immunophenotypic expression of plasma cell myeloma patients at diagnosis and to study the association between these markers with clinical and laboratory parameters. A retrospective study was carried out from June 2016 till June 2019 by collecting the flow cytometry results (CD38/CD138/CD19/CD45/CD56/CD117 and cytoplasmic kappa and light chain expression) from newly diagnosed plasma cell myeloma cases in both Hospital Kuala Lumpur and Hospital USM. Clinical and laboratory data were retrieved from medical record and statistical analysis were done using SPSS26.0. All 78 cases of newly diagnosed myeloma flow result show 100% expression rate for both CD38 and CD138 with CD19/CD45/CD56/CD117 in 28.2%, 23.1%, 83.3% and 25.6% respectively. Majority were expressing kappa light chain restriction, 60.3%. There was a significant association between CD19 markers with serum creatinine (p=0.036). However, there were no significant association found among other immunophenotypic marker expression with its associated factors. There was an association shown among CD19 with serum creatinine. However, this might not be a definitive result as the sample size was small.

Keywords: Plasma cell, myeloma, flow cytometry, serum creatinine

BO_5

High dose of testosterone reduces expression of □V□3 Integrin in the endometrium of rats during uterine receptivity.

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Abstract

αvβ3 integrin is a molecule that plays an essential role in embryo implantation. It is involved in cell-cell and cell-matrix interactions and is one of the markers of endometrial receptivity. In females, plasma testosterone is reported to fluctuate throughout the menstrual cycle and in early pregnancy. Its high levels could interfere with uterine receptivity development. Thus, this study aimed to investigate the effects of testosterone on the expression of □V□3 integrin in the endometrium during uterine receptivity. Ovariectomized adult female rats received 8 days of sex-steroid replacement regimes to mimic hormonal changes in early pregnancy. Testosterone (1mg/kg/day - supraphysiological dose) was given either alone or in combination with flutamide (androgen blocker) or finasteride (5α-reductase inhibitor) between days 6 to 8, which was considered as the period of uterine receptivity. At the end of the treatment, rats were sacrificed, and uteri were removed. Expression and distribution of □V□3 integrin were examined by quantitative real-time PCR and immunofluorescence (IF), respectively. Increased expression of □V□3 integrin was observed in rats receiving normal sex steroid replacement regime. In this study, it was found that the administration of high dose of testosterone during the uterine receptivity period resulted in reduced expression of □V□3 integrin. However, this effect was not antagonized either by flutamide or finasteride. In conclusion, reduced expression of □V□3 integrin by a high dose of testosterone could impair the uterine receptivity, thus interfere with embryo implantation.

Keywords: testosterone, □V□3 integrin, uterine receptivity, embryo implantation.

BO_6

A Preliminary Study on the Effects of Stingless Bee Honey (SBH) on Fasting Blood Glucose in Streptozotocin (STZ)-induced Diabetic Rat Models.

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Abstract

Diabetes is a metabolic disorder characterised by hyperglycaemia due to defects in insulin secretion, action or both. The stingless bee honey (SBH) has good antihyperglycemic potential and has been used traditionally as an alternative treatment in diabetes mellitus (DM). Since the role of SBH in controlling the glucose level in animal and human study is still unclear, this present study was designed to evaluate the antihyperglycemic effects of SBH in streptozotocin (STZ)-induced diabetic rat models. Fifteen Sprague-Dawley (SD) rats (200-250 g) were equally divided into five groups; where the first group was a normal rat and the other four groups were induced to be diabetes. The normal and untreated-diabetic groups received normal saline while other diabetic groups treated with SBH (2 g/kg body weight), metformin (MET/250 mg/kg body weight) and SBH + metformin; respectively. The treatment was performed within 12 days. Fasting blood glucose (FBG) level was measured at baseline and biweekly thereafter. At day-7 and day-12, SBH significantly reduced the FBG comparable to normal group (p<0.05). Group treated with MET and the combination of SBH-MET only showed an improvement of FBG on day-12 of treatment (p<0.05). The findings indicate that single SBH treatment is effective in reducing blood glucose level. Thus, SBH may be a great value in managing diabetic in human.

Keywords: Diabetes, stingless bee honey (SBH), antihyperglycemic, fasting blood glucose (FBG), streptozotocin (STZ)-induced diabetic rat model

BO_7

Airway Remodeling and Pregnancy Hormones Alteration in Ova-Induced Asthma Mouse Model

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Abstract

Asthma is an inflammatory disease characterized by reversible airway-obstruction and -hyper-responsiveness. At present, information about the association of allergic airway in pregnant asthma mouse model is scarce. This study determined the effect of ovalbumin (OVA) as an allergen that induces asthma, on the maternal airway in pregnant mouse model using hematoxylin & eosin (H&E) as a modality. Eighteen female BALB/c-mice, 20-25g (4-5 weeks-old) were divided into sham (G1), PBS (G2), and 100µg/200µL OVA (G3) groups. On Day-0, -14, and -21, animals of G3 were sensitized using 100µg/200µl OVA (intraperitoneal injection, i.p). On Day-27, -28, and -29, animals G3 were challenged using 75µg/50µL OVA (nasal instillation, n.i). Following superovulation with 5 IU pregnant mare serum gonadotropin (PMSG) and human chorionic gonadotropin (hCG) (i.p), animals were mated with fertile males. On Day-31 (10-day post coitum, p.c), lung tissues were retrieved for H&E staining, and serum progesterone (P_4) and estrogen (E_2) were measured. Results showed reduced bronchial lumen area and increased bronchial wall thickness in G3 compared to G2 animals ($p<0.05$). Goblet-cell hyperplasia and hyper-mucus secretion were visible in G3 compared to G2 group ($p<0.05$). Serum P_4 and E_2 levels were also attenuated in G3 compared to G2 animals ($p<0.001$). In conclusion, dose 100µg/200µL OVA had caused redox imbalance, resulting in maternal airway remodeling, and altered pregnancy hormone levels in asthma mouse model. The activation of specific signaling pathways that had promoted cellular repair in this model warrants further illustrations.

Keywords: Ovalbumin, Asthma, Airway remodeling, Goblet cell hyperplasia, Hyper-mucus secretion, Pregnancy hormones

BO_8

Tuberculosis (TB) Treatment Outcomes among TB Patients in Kelantan; 5 Years Record Review

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Abstract

In Kelantan, the prevalence of TB treatment success rate is still below the success target of the World Health Organisation (WHO). Our objective was to assess the socio-demographic profile and determine the prevalence of TB treatment outcomes among TB patients in Kelantan for 5 years period. This is a cross-sectional study, carried out at TB/Leprosy Sector, Jabatan Kesihatan Negeri Kelantan by reviewing the secondary data from January 2014 to December 2018 in MyTB online system. The data were analysed using SPSS version 25.0. The ethics approval obtained from Medical Research Ethics Committee (MREC) and UniSZA Human Research Ethics Committee (UHREC). From January 2014 to December 2018, there were 6,313 TB cases in Kelantan. However, 696 cases were excluded and 5,617 cases were evaluated based on inclusion criteria. The mean (SD) age was 47.79 (16.79) years and duration of TB treatment was 210.32 (100.67) days. The prevalence of successful TB treatment was 81.5% with 51.1% cured and 30.4% treatment completed. While the unsuccessful TB treatment were 18.5% with 0.2% treatment failure, 13.4% cases of death and 4.9% defaulted. The proportion of patients with successful outcomes was significantly associated with gender, level of education, occupation, diabetes mellitus status, HIV status, anatomy of TB location, chest X-ray status, case TB category, smoking status, regime of treatment, DOTS status, source of notification, place of diagnosis, place of treatment and district. This study provides the basic data of patient's socio-demographic. The prevalence of TB treatment success in Kelantan is under international target by WHO of ≥90.0%.

***Keywords*:** Co-Infected Patients, Human Immunodeficiency Virus (HIV), Prevalence, Socio-Demographic, TB Treatment, Treatment Outcome, Tuberculosis (TB)

BO_9

Array-based Comparative Genomic Hybridisation for the Identification of Submicroscopic Chromosomal Abnormalities in Patients with Unexplained Intellectual Disability/Multiple Congenital Anomalies

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Abstract

The underlying causes of intellectual disability/multiple congenital anomalies (ID/MCA) in many patients remain unidentified despite extensive investigation. Routine karyotype analysis is not sensitive enough to detect submicroscopic chromosomal abnormalities. Molecular karyotyping methods, such as array-based comparative genomic hybridisation (array-CGH) can detect submicroscopic chromosomal abnormalities at high resolution and reveal novel microdeletions. This study aimed to identify and characterise submicroscopic chromosomal abnormalities in a cohort of patients with unexplained ID/MCA syndrome. A study was conducted on 50 selected ID/MC patients with normal G-banded karyotype for the presence of submicroscopic chromosomal abnormalities. Array-CGH was performed using commercially available high resolution 244K 60-mer oligonucleotide microarray slide. This platform allows genome-wide survey and molecular profiling of genomic aberrations with an average resolution of about 10 kb. Clinically relevant chromosomal abnormalities were identified in 11 patients (22%) consisting of eight microdeletions and three microduplications, ranging from ~120 kb to 7.3 Mb and were scattered throughout the genome. Out of 11 patients, 5 patients were identified to have deletions associated with known syndrome while the remaining 6 patients have chromosomal abnormalities that are yet to be associated with any known syndrome and rarely reported in the literature. The data from this study demonstrates the ability of array-CGH to detect submicroscopic chromosomal abnormalities which are undetectable by conventional karyotype and may provide useful information in the delineation of new syndrome.

Keywords: Intellectual disability, syndrome, multiple abnormalities, chromosome aberrations, comparative genomic hybridization

BO_10

Biofilm inhibition of periodontal pathogen by probiotic cells and supernatant

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Abstract

Periodontal disease is the settlement and development of bacteria biofilm at the gingival edge that prompts ongoing gum disease and periodontitis. Furthermore, periodontal disease reported to be associated with several systemic diseases. *Aggregatibacter actinomycetemcomitans* is one of the important species implicated as a causative agent of serious periodontal diseases. Antibiotics frequently used to treat periodontal disease, but existing biofilms may resist due to lack of penetration towards extracellular polymeric material of the biofilm. Also, an undegradable antibiotic secreted by urination pollutes the water ecosystem. *Lactobacilli* species have been associated with cases of dental caries. However, scientific research on *Lactobacilli* in relation to oral health is a new area, and only a few findings have been published. Therefore, the goal of this study is to use probiotic *Lactobacilli* as an alternative approach to inhibit biofilm activity of periodontal pathogens. Five *Lactobacillus sp*. and four *A. actinomycetemcomitans* strains were used. The effects of *Lactobacillus* sp. towards *A. actinomycetemcomitans's* biofilm was determined using biofilm inhibition assay of 96-well plate. *A. actinomycetemcomitans* cells of the exponential phase were co-cultured with the cells or supernatant of the *Lactobacillus sp.* at both exponential and stationary phase. For control, *A. actinomycetemcomitans* cells of the exponential phase were allowed to grow alone. Data of three replicates were presented as mean ± SD (standard deviation). The comparison was performed using Student t-test Software with P- value < 0.05. The result showed there was a significantly different in biofilm formation of all four *A. actinomycetemcomitans* strains in control as compared to those co-cultures with *Lactobacillus sp.* This finding implicates a potent effect of the probiotic *Lactobacillus sp*. as an agent against the periodontal pathogen.

Keywords**:** *Aggregatibacter actinomycetemcomitans*, periodontal disease, biofilm formation, probiotic *Lactobacillus*, biofilm inhibition assay.

BO_11

Antimicrobial susceptibility profiles and prevalence of inducible clindamycin resistance in methicillin-resistant Staphylococcus aureus (MRSA) clinical isolates from Terengganu, Malaysia

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Abstract

Methicillin-resistant *Staphylococcus aureus* (MRSA) is an important Gram-positive pathogen in both the community and hospital settings. Clindamycin and erythromycin have been used to treat *S. aureus* infections but the production of macrolide-lincosamide-streptogramin B resistance (MLS_B) reduces the efficacy of these drugs. In Malaysia, limited information exists on the susceptibility profiles and MLS_B phenotypes of MRSA. Therefore, the present study aims to determine the antimicrobial susceptibility profiles among local MRSA isolates and identify their MLS_B resistance phenotypes. A total of 196 MRSA isolates obtained between the years 2016-2017 and in 2019 from Hospital Sultanah Nur Zahirah, the main tertiary hospital in Terengganu, Malaysia, were included in this study. All isolates were subjected to susceptibility testing to 18 antimicrobial classes that encompassed 26 antibiotics. The disk diffusion method used included the D test for MLS_B phenotypes determination and was performed and interpreted following the Clinical and Laboratory Standards Institute (CLSI) and European Committee on Antimicrobial Susceptibility Testing (EUCAST) guidelines. The highest resistance rate was observed for penicillin but a slight decrease in penicillin resistance rate was observed from 100% in 2106 to 98.1% in 2019. Decreasing resistance to other tested antibiotics such as amikacin (from 15.5 % to 0%) was also seen during the study period. Majority of MRSA isolates (73%) were multidrug resistant (MDR), with most displaying resistance to three or four antimicrobial classes. Interestingly, the MDR prevalence declined from 78.9% in 2016 to only 49% in 2019. Furthermore, 42.8 % of the isolates exhibited inducible MLS_B phenotype with the highest prevalence observed in 2017 (around 22 %) compared with 2016 (10.7%) and 2019 (10.2%). Moreover, the inducible MLS_B resistance phenotype was predominant over constitutive MLS_B and this has clinical implications as the use of clindamycin as treatment could lead to therapeutic failure. Despite annual variations in the MRSA resistance profiles, a high MDR and inducible MLS_B resistance rates were observed in this study, which is a cause of concern. To combat this problem, it is necessary to perform complete susceptibility testing for optimum therapy. Periodically evaluating antibiotics resistance pattern and its trends is recommended for infection control.

Keywords: Resistance, Antibiotic susceptibility testing, MRSA, MLS_B phenotype, inducible clindamycin resistance

BO_12

Perceptions Towards Forms of Intimate Partner Violence Among Premarital Young Adults in Kelantan

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Abstract

Intimate partner violence (IPV) is an important element to be known by the young adults as they begin into serious relationships. Their perceptions on IPV subsequently may influence their future relationships. This study aims to determine the perceptions and factors associated with perceptions towards IPV. This cross-sectional study was carried out among young adults who registered for premarital courses in Kelantan, using a self-administered validated questionnaire (MY-PAIPV). The collected data were analysed using SPPS (Version 25); simple and multiple logistic regression, to identify factors associated with perceptions of IPV. A total of 305 young adults responded, with almost similar distribution male and female (46.2% and 53.8%). The mean age of the respondents was 24 years old. The significant factors associated with misperceptions towards physical violence were female (Ad.OR 2.006, 95% CI= 1.221,3.295; p=0.006) and high income (Ad.OR 0.024, 95% CI= 0.001,0.625; p=0.024). The significant factors associated with misperceptions towards psychological violence were female (Ad.OR 2.551, 95% CI= 1.428,4.556; p=0.002), self-working (Ad.OR 0.551, 95% CI= 0.300,1.012; p=0.050) and high income (Ad.OR 0.020, 95% CI= 0.001,0.525; p=0.019), while the significant factor associated with misperceptions towards controlling actions were only female (Ad.OR 1.822, 95% CI= 1.089,3.051; p=0.022). Misperceptions towards IPV still substantial among young adults. These misperceptions may stem from lack of education and personal discomfort with the issue or from other factors such as gender. Recognition of these factors emphasize the need for comprehensive prevention programs to increase the awareness towards IPV and reduce the possible bad impacts consequence.

Keywords: Intimate Partner Violence, Young Adults, Perceptions.

BO_13

Investigation of the cytotoxicity and cellular uptake of bismuth oxide nanoparticles in MCF-7 cell line

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Abstract

Recent advances in nanotechnology have introduced to the state-of-the-art of nanomaterials with potential application in medicine to improve the therapeutic strategies against cancer. Due to increasing interest in the application of nanoparticles in medicine, the potential hazard to human health and safety has become the matter of concern. Bismuth (Bi)-based compounds have been commonly used in the industrial and medical applications, but lack of information concerning their toxicity and effects in the nanoscale on human health. Therefore, this study aims to determine the cytotoxicity effect of the bismuth oxide nanoparticles (Bi_2O_3 NPs) and their cellular internalization in MCF-7 cells. The nanorods shape Bi_2O_3 NPs (80 nm) were prepared by using hydrothermal method. Human breast cancer MCF-7 cells were cultured and incubated with 0.00005, 0.0005, 0.005, 0.05, and 0.5 mM concentrations of Bi_2O_3 NPs. Cytotoxicity effects of Bi_2O_3 NPs on the cells was performed using PrestoBlue cell viability reagent. Label-free flow cytometry were used to analyse the cellular Bi_2O_3 NPs uptake. The results show the ability of the MCF-7 cells to maintain their cell viability more than 80% when incubated with all concentration of Bi_2O_3 NPs for up to 72 h except for 0.5 mM. The cell death was greater than 60% for cells treated with 0.5 mM concentration. MCF-7 cells demonstrated a significant increase in side-scattered light (SSC) intensity which indicating cell granularity after 24 hrs treatment with 0.05 and 0.5 mM of Bi_2O_3 NPs. In conclusion, the Bi_2O_3 NPs at considered concentration is not hazardous and can be internalized into the cells. However, the Bi_2O_3 NPs exhibit concentration-dependent toxicity, hence the potential hazardous associated with their application and the safety aspect to human health's should be concerned in the future works.

Keywords: bismuth oxide nanoparticles, cytotoxicity, nanoparticles uptake, breast cancer cells.

BO_14

The Effect of Autogenous, Non-vascularised Periosteum Transplantation on Allograft Bone Grafting for Large Cortical Load-Bearing Bone Defect - A Rabbit Model

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Abstract

A large cortical bone defect is a common problem in orthopaedic practice globally. The use of segmental bone allograft as space filler has become an accepted method. But there are many complications; non-union, delayed union or fracture of allograft. To improve host-graft union, the effect of allograft on a large cortical tibial bone defect in a rabbit model augmented with a non-vascularised periosteal flap was studied. Twelve mature Australian White Rabbits were used. Nine rabbits divided into three groups (A, B, C) and three other rabbits were used as control (group D). A 3cm segmental defect were surgically resected in the mid-shaft of right tibia and replaced with fresh-frozen-allograft transfixed with Kirschner wire. The limb was immobilized with cast. Allograft segments of rabbits in group A, B and C were wrapped circumferentially with non-vascularised periosteal flap harvested from the contralateral tibia. Group D had allograft transplantation only. Healing was evaluated at the end of 2nd, 4th and 6th weeks with plain radiographs, CT scan, and histological evaluation. In rabbits with allograft bone graft wrapped with periosteal flap, bony union was achieved at both ends of the allografts at the end of 4th and 6th weeks. Histologically, solid callus encasing the whole allograft segments at the end of 6th weeks. In the control group, union did not occur at both ends of the allograft segments even up to the end of 6th week. No callus formation surrounding the allograft segments. Fragmentation and telescoping of the allograft segment into the medullary cavity of the host was observed. The use of autogenous, non-vascularised periosteal flap modified the healing process of allograft and maintained the integrity of the allograft.

Keywords: allograft, bone grafting, large cortical defect, periosteum, union

BO_15

Dose-response Relationship of Ovalbumin on Preimplantation Embryonic Growth in Asthma Mouse Model

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Abstract

Ovalbumin (OVA) induction into mouse exhibits asthmatic phenotypes particularly airway-inflammation, -hyperresponsiveness and -remodelling. Presently, the implication of OVA-induced maternal asthma on preimplantation embryonic growth is unclear. This study aimed to assess the impact of OVA on embryo phenotyping via inflammatory-oxidative stress (OS) mechanism in asthma mouse model. Thirty female BALB/c-mice were sensitized intraperitoneally (i.p) with 50-, 100- and 150-µg/200µL of OVA-aluminium hydroxide [Al(OH)3] cocktail on day-0 and -14 of treatment, respectively. On day-21, -22 and -23, animals were sensitized with 75µg/50µL OVA through nasal instillation (i.n). Animals were then superovulated (i.p) with 5 IU pregnant mare serum gonadotrophin (PMSG) and human chorionic gonadotropin (hCG) on day-21 and -23, respectively. On day-25, the retrieved embryos were cultured *in vitro*. Serum were subjected to inflammatory-OS assays. Progesterone (P_4) and estrogen (E_2) levels were also measured. Results suggested that the effects of OVA on quantity and quality of preimplantation embryos in asthma mouse model is dose-dependent. We postulated that OVA had raised levels of reactive oxygen species (ROS). This in return caused an overwhelming in antioxidant enzyme defences. Subsequently, increased maternal inflammatory-OS responses had ultimately attenuated the number and morphology of the developing embryos in this model. Declined pregnancy hormone levels suggested further roles of OVA at ovarian and pituitary levels and this warrants elucidation. It is noteworthy that OVA at all doses induced maternal allergic airway inflammation and to a varying degree, impaired embryonic growth, although 150µg/200µL OVA showed a more potent inflammatory-OS effects in this model.

Keywords: ovalbumin, asthma, inflammation, oxidative stress, preimplantation embryos

BO_16

Virgin Coconut Oil (VCO) Accelerated Wound Healing Process in Diabetic Ulcer among Diabetes Mellitus (DM) Patients in Dr. Rasidin Hospital, Padang, Indonesia

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Abstract

DM ulcer is one of the complications of DM that resulted in amputation even death. A DM ulcer usually a chronic wound which difficult to heal with antibiotics because of the presence of the Staphylococcus bacteria resulting in an antibiotic-resistant ulcer, requiring an alternative as the solution. VCO, one of the natural materials that are easily acquired have benefits for wounds and often used by the community. VCO contains lauric acid and flavonoids compounds work as antibacterial, anti-inflammatory, antioxidant, and analgesic. The purpose of this study is to determine the benefits of VCO on the healing of DM ulcers. This was a quasi-experiment study recruited 16 DM patients with ulcers treated at the Dr. Rasidin Hospital, Padang, Indonesia. The study participants are divided into 2 groups, 8 patients in the control group, and another 8 in the intervention group. The control group is given wound care using NaCl 0.9% and the intervention group carried out wound care with NaCl 0.9% plus VCO. VCO is produced using a stimulation technique. Wound care is performed for 4 days in both groups and the surface area of the wound is calculated after 4 days then the data precede using independent t-test. The results of the study showed a meaningful difference in surface wound between the control group and the intervention group with the value P = 0,033. VCO helps wound healing by reducing the surface area of the wound.

Keywords: VCO, DM ulcer, Wound healing process

BO_17

Recombinant expression of *Plasmodium knowlesi* apical membrane antigen 1 (PkAMA1 DI-II) using two *Pichia pastoris* strains

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Abstract

Human malaria caused by a zoonotic *Plasmodium knowlesi* remains a health concern in Southeast Asia countries. Apical membrane antigen 1 (AMA1) is a potent vaccine candidate and pivotal antimalarial target, it plays a crucial role in parasites-host cell invasion. Soluble and functional active AMA1 immunization in animal models conferred immunogenicity that gives protection against malaria infection. Hence, this study aims to compare the optimum conditions for the expression of recombinant domain I-II of PkAMA1 (rPkAMA1) protein using two *Pichia pastoris* strains, i.e., KM71H and X33. In brief, clone designated as pPicZαA-PkAMA1 was constructed and then cloned into KM71H and X-33, respectively, which allow the secretory expression of recombinant rPkAMA1 (~43 kDa). The protein expression in KM71H and X-33 were induced at OD_{600} 3 with four methanol concentrations, i.e., 0.5%, 1%, 2% and 3% up to 144h. In every time point, one ml of culture was harvested, the supernatant was acetone precipitated, and then visualized using 12% SDS-PAGE. Expression in KM71H was higher compared to X-33 and thus, subsequent large-scale expression was carried out in KM71H based on the optimized conditions (1% methanol, 48 hours). The expressed antigen will be used for the antigenicity study against IgG and IgM antibodies in *Plasmodium* infected indigenous patient sera. Western blot assay only showed a positive signal against IgG antibody in all infected sera and this preliminary finding indicated that the possibility of a long exposure of those indigenous communities to *Plasmodium* infection. In conclusion, the soluble and functional active recombinant protein that produced in this study has the potential to be further developed into an effective vaccine that sustain for long-term protection.

Keywords: *Plasmodium knowlesi*, apical membrane antigen 1 (AMA1), *Pichia pastoris*, KM71H, X-33.

Scope: Exploring Novel Researches in Rehabilitation

RO_1

Religiosity and Psychosocial Impacts of Islamic Inabah Rehabilitation Programme For Drug Addiction In Malaysia

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Abstract

Inabah programme represents an Islamic rehabilitative approach that is gaining popularity among Muslim drug addicts in Malaysia, but is yet to be rigorously tested for its impacts. This study specifically attempts to investigate religiosity and psychosocial outcomes based on a pre- and post- study design in Peninsular Malaysia. Using convenience sampling, recruited respondents from three Inabah centres were administered the Psychological Measure of Islamic Religiousness (PMIR) to measure religious faith and commitment (4 major domains; higher score = better religiosity). Psychosocial issues were also assessed via other additional domains in PMIR – *Positive Relationship, Satisfaction In Life, Purpose In Life, Anger, Depressed Mood, Social Desirability*. Data analysis was conducted via descriptive and parametric techniques (paired t-test, Cohen's *d*) using SPSS 23. A total of 144 Muslim males participated during pre-Inabah (onset age of addiction = 19.6 ± 5.8; poly-drug user = 63.0%; intervention period ≤ 6 weeks = 60.9%; no imprisonment history = 75.7%; amphetamine-type stimulants abusers = 71.1%). Inabah intervention was administered for a minimum of 6 weeks. One-hundred-and-fifteen respondents finally completed the post-Inabah phase (drop-out = 29). Significant reductions in the level of *Anger* (d = 0.34; p = 0.004) and *Depressed Mood* (d = 0.28; p = 0.010) were reported. Nonetheless, no significant differences were found in the other domains although a general trend of small improvements was apparent in majority. It was hence evident that Inabah is a potentially beneficial approach for drug addicts in recovery, particularly with regard to enhancing psychological aspects.

Keywords: Inabah rehabilitation programme, drug addiction, religiosity, psychosocial

RO_2

Oral-DDK Rates in Malaysian-Malay speakers

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Abstract

This study investigated the effects of age, and real word *vs.* nonword stimuli effect on oral-diadochokinetic (oral-DDK) rates among healthy Malaysian-Malay speakers. A secondary goal was to compare the oral-DDK performance between Malaysian-Malay, Mandarin, and Hebrew speakers. Oral-DDK performance of 90 speakers (20-77 years) using nonword ('pataka'), Malay real word ('patahkan'), and English real word ('buttercake') was audio recorded. The number of syllables produced in 8 seconds was calculated. Mixed analysis of variance (ANOVA) was conducted to examine the effects of stimulus type (nonword, Malay, and English real word), gender (male, female), age (younger: 20-40 years, middle: 41-60 years, older: ≥ 61 years), and their interactions on the oral-DDK rate. Data obtained were also compared with the raw data of Malaysian-Mandarin speakers from the previous studies. A normative oral-DDK rate has been established for healthy Malaysian-Malay speakers. The oral-DDK rate was significantly affected by stimuli ($p < 0.001$). Malay real word showed the slowest rate, whereas there was no significant difference between English real word and nonword. The oral-DDK rate for Malay speakers was significantly higher than Mandarin and Hebrew speakers across stimuli (all $p < 0.01$). In sum, stimuli type affects the oral-DDK rate, indicating that speech-language pathologists should consider using the language-specific norms when assessing multilingual speakers.

Keywords: oral-DDK; adults; Malay speakers; nonword; real word; aging

RO_3

Communication Challenges and their Impact Among Adolescent Siblings of Children with Autism

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Abstract

Sibling relationships play an important role in early child development yet remain understudied in typically developing adolescents living with siblings with autism spectrum disorder (ASD). This study aimed to explore the lived experiences and perceptions of adolescents who have a brother or a sister with a diagnosis of ASD. Fourteen typically developing adolescents (mean age= 15.4, SD= 2.06, 11 females, 3 males) with a sibling with ASD underwent face-to-face (n= 5) or phone (n= 9) semi-structured interviews. All interviews were transcribed and coded using thematic analysis. Six main themes were identified: (1) communication challenges, (2) behavioural responses utilized to overcome communication breakdowns, (3) emotional reactions toward behaviour manifested, (4) psychological coping strategies toward behaviour manifested, (5) strategies to manage manifested behaviour, and (6) impact on relationships. Participants reported having difficulties communicating with their siblings mainly due to a lack of understanding of the disorder and the unavailability of techniques to communicate with them. Feeling a mixture of emotions was common when interacting with their siblings with ASD and emotional self-regulation was a typical coping strategy utilized by these adolescents. Despite the challenges, having a sibling with ASD led to closer relationships between the siblings. These exploratory findings offer insights into these adolescents' needs and how they may be best supported, informing the practice of speech-language pathology and other health professions, as well as future research.

***Keywords*:** autism; siblings; communication, challenges; interview

RO_4

Effects Of Game-Based Task-Oriented Circuit Training On Functions Among Stroke Survivors In Hospital Raja Perempuan Zainab II: A Pilot Study

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Abstract

Despite being increasingly popular and heavily used in rehabilitation, the evidence on the effectiveness of game-based task-oriented circuit training among stroke survivor remains limited. The aim of this study was to determine the effects of game-based task-oriented circuit training on functions and quality of life of stroke survivors. This was a pretest-posttest experimental trial involving 30 participants (mean age and standard deviation = 58.9 ± 6.6 years; mean Montreal Cognitive Assessment scoring = 23.4 ± 7.1) based on sample size calculation by G*Power 3.1.9.2 software. Stroke survivors aged between 55 to 75 years old who was diagnosed with stroke (at least 2 months after stroke), able to follow 3 steps command and able to walk at least 10-metre with or without walking devices were been recruited. This trial performed in Unit Fisioterapi, Hospital Raja Perempuan Zainab II, Kota Bharu between August 2019 to February 2020. All participants received game-based task-oriented circuit training named “Checkercise Board” for 45 minutes, once per week for 12 weeks. The outcome of therapy on lower limb strength, functional stability and aerobic capacity was measured using 30-second Chair Rise test, Dynamic Gait Index (DGI), 6-minute walking test, respectively. Analysis was done by ‘intention-to-treat’ approach, using *Paired Samples* t test to determine the differences between pre and post-treatment outcomes scores. All data were analyzed using the Statistics Package for the Social Sciences (SPSS), version 23.0. The significance level was set at p value < 0.05 and Cohen’s (d) was used to determine the effect size. Participants’ post-treatment 30-second Chair Rise test, Dynamic Gait Index (DGI), 6-minute walking test scores were 9%, 7% and 23% higher than pre-treatment significant (p < 0.05), respectively with medium effect size between 0.5 to 0.6. Game-based task-oriented circuit training is effective in improving lower limb strength, functional stability and aerobic capacity of stroke survivors, and can be used as a therapy option for this population..

Keywords: Game-based, stroke, circuit training

RO_5

Bone Metabolism Markers in Response to Three and Six Sessions of Low Energy Extracorporeal Shockwave Therapy in Individuals with Post Anterior Cruciate Ligament Reconstruction

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Abstract

To date, information of the effects of extracorporeal shockwave therapy (ESWT) on biochemical status in humans are lacking Thus, this study investigated the effectiveness of three and six sessions of low energy ESWT on serum bone metabolism markers in individuals with post anterior cruciate ligament (ACL) reconstruction. Participants with ACL injuries were assigned into three groups (n=10 per group), i.e. physiotherapy alone without ESWT (control), three sessions of ESWT combined with physiotherapy (3ESWT) and six sessions of ESWT combined with physiotherapy (6ESWT) groups. Serum bone metabolism markers, i.e. osteocalcin (OCN), human Cross Linked C-telopeptide of Type 1 Collagen (CTXI), calcium and phosphorus were measured at week 0, 2 weeks, 9 weeks, 12 weeks, and 6 months post ACL reconstruction. There were no significant differences of serum OCN and CTXI concentrations within 3ESWT and 6ESWT groups across the five measurements ($p>0.05$). Serum calcium concentrations at 2 weeks, 9 weeks and 12 weeks were significantly higher compared to serum calcium concentrations at baseline ($p=0.023$, $p=0.004$ and $p=0.001$ respectively). Shockwave therapy did not significantly affect bone resorption and formation markers post-operatively. Six sessions of shockwave therapy elicited highest serum calcium level at 12 weeks post-operatively. Future studies are warranted to validate these findings.

Keywords: Bone metabolism, shockwave therapy, anterior cruciate ligament

RO_6

Effects of Physical Training and Behavioral Strategies Towards Muscle Strength and Mental Health in the Elderly

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Abstract

The promotion of physical training (PT) and positive behavior in the elderly requires effective interventions. This study shows the effect of PT during a 6-week intervention program by applying behavioral strategies. A total of 63 participants aged 65 years old were randomly divided into three groups: Physical with a behavioral group, PB (n=18), Physical group, PG (n=23), and Control group, CG (n=22). PB and PG participants underwent a six-week group-based multi-component PT for one hour per session, three sessions a week. After the PT, participants in PB will begin five-week behavioral exercises for 30 minutes per day, twice a week. Meanwhile, CG participants only have to maintain their daily routines. Upper limb (UL) muscle strength, lower limb (LL) muscle strength and mental health were assessed by using 30-sec arm curl test, 30-sec chair rise test and 15-items Geriatric Depression Scales, respectively. Results from repeated measures ANOVA showed significant differences between groups due to time factor, group and time interaction and between-group factor (All, $p < 0.05$) for Right UL, Left UL and LL strength. Analysis of covariance (ANCOVA) (controlling for baseline performance and age) for mental health [$F(2,58) = 33.49$] ($p < 0.05$) showed significant main effects among participants in PB, thus indicating improved mental health. In conclusion, a combination of PT and behavioral strategies may be a promising strategy rather than PT alone in enhancing better physical and mental wellbeing of the elderly.

Keywords: Behavioral, Elderly, Mental health, Physical

RO_7

The Effect of Family Psychoeducation on Tuberculosis Treatment Adherence of Children in Indonesia

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Abstract

Tuberculosis (TB) is an infectious disease leading cause of death in the world but medication adherence the most underrated and understudied factor affecting the outcome of tuberculosis therapy. The aim of this study was to determine the effect of family psychoeducation on tuberculosis treatment adherence of children**.** The study used a randomized controlled trial (RCT). The sample was 40 pairs of primary caregivers and children who received TB treatment and experienced no side effects of anti-TB drugs. They all agreed to become research subjects. The treatment group was given psychoeducation by trained health personnel psychoeducators, while the control group was given education by health workers. Psychoeducation was carried out individually, 3 times a week, then treatment adherence was evaluated at the sixth month which was the end of the TB treatment period. TB treatment adherence was assessed using a questionnaire. Data were analyzed by using logistic regression. The results showed that psychoeducation had an effect on TB treatment adherence in children after controlling for maternal knowledge variables (p-value 0.047 < 0.05). Adherence to TB treatment in children was 4.5 times higher in families who received psychoeducation than those who did not receive psychoeducation. Psychoeducation training should be provided to all health workers to improve adherence to TB treatment in children.

Keywords: Family Psychoeducation, Treatment Adherence, Tuberculosis

RO_8

Association between Index-to-Ring Finger Length Ratio (2D:4D) and WOMAC Osteoarthritis Index in Women with Knee Osteoarthritis

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Abstract

Introduction: Finger length ratio is a sexually dimorphic trait. Generally, men have low index-to-ring finger length ratio (2D:4D), in which the ring finger is longer than the index finger. On the other hand, women typically have high or equal 2D:4D ratio. Different 2D:4D is associated with human physical capability, attitude and characteristic. Previous studies suggested that low 2D:4D ratio is associated with higher risk to developed knee osteoarthritis in women. The current study aimed to determine the association between 2D:4D ratio, Western Ontario and McMaster (WOMAC) osteoarthritis index, and body mass index (BMI) in women with mild to moderate knee osteoarthritis. **Methods:** We conducted a cross sectional study in 118 women with Kellgren-Lawrence grade 2-3 knee osteoarthritis using the WOMAC questionnaire. The length of the index and ring finger were measured using right hand plain radiographs. Participants were classified into three groups: type I (index finger longer than ring finger), type II (equal length), and type III (index finger shorter than ring finger). BMI was measured and calculated using standard measurements and calculations. **Result:** Most of the participants had type III finger pattern (47%). There was no significant mean difference between the mean total WOMAC score and each component with 2D:4D ratio. BMI correlated significantly with knee osteoarthritis symptoms based on the total WOMAC score ($p < 0.001$). There was a significant association between 2D:4D ratio and BMI ($p = 0.015$). **Conclusion:** No association between 2D:4D ratio and WOMAC score was found. However, there was a positive correlation between the WOMAC score and BMI, and 2D:4D ratio had a significant association with BMI.

Keywords: 2D:4D ratio, osteoarthritis knee, finger length, female gender, WOMAC score

RO_9

Factors Influencing Instrumental Activities of Daily Living (IADL) Disability Among Elderly Attending Health Clinics in Kelantan

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ABSTRACT

Aging carries with it to higher disability rate due to the burden of chronic illness and injury. Disability is described as a difficulty in performing daily activities, such as instrumental activities of daily living (IADL) which consists of complex activities that allow an elderly to live independently. Even though there are several studies done on factors influencing IADL disability, such studies in Malaysia are still lacking. Thus, this study aimed to determine the factors influencing IADL disability among elderly attending health clinics in Kelantan. A guided questionnaire consists of sociodemographic characteristics, health-related conditions, Lawton IADL scale, Elderly Cognitive Assessment Questionnaire (ECAQ), Geriatric Depression Scale (GDS) and Duke Social Support Index (DSSI) was carried out. Multiple logistic regression (MLR) was performed to assess factors influencing IADL disability. A sample of eligible 248 elderly from 12 health clinics in Kelantan were included, 36.3% of them had disabled IADL status. The mean (SD) age was 69.04 (6.43). In the final MLR model, factors influencing IADL disability among elderly attending health clinics in Kelantan were age group 80 years old and above (Adj. OR 14.61; 95% CI: 2.57, 83.07, p-value=0.003), unmarried (Adj. OR 2.20; 95% CI: 1.15, 4.21, p-value=0.017), no formal education (Adj. OR Adj. OR 3.86; 95% CI: 1.57, 9.50, p-value=0.003), low level of income (Adj. OR 2.54; 95% CI: 1.18, 5.48, p-value=0.018) and those who reported fair or poor self-rated health status (Adj. OR 2.63; 95% CI: 1.35, 5.13, p-value=0.005). Therefore, recognition of these factors is critical to intensify our prevention plan and to provide appropriate care and intervention for the elderly in the country.

Keywords: aging, disability, factors, IADL, Lawton scale

RO_10

The Effect of Gender on Bal Exzz Subjective Visual Vertical (SVV) Finding Among Healthy Adults

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Abstract

The BAL EXzz Subjective Visual Vertical Test (SVVT) using the bucket method is one of the objective vestibular assessment that is easy to conduct in clinical practice to determine the otolith organ function. Bal EXzz SVVT & SVHT in a new invention there no normative study done yet among healthy adults in Malaysia. Our objectives of this study are to obtain the normative values of the absolute value of the vertical deviation for the bucket method and to evaluate the effect of gender on the SVV finding. A total of 30 participants with equal gender numbers have been recruited for this study. Following the screening process using the MVVSS questionnaire, the participants were instructed and tested for BAL EXzz SVVT. The test was conducted according to the standard protocol and on each clockwise and counter-clockwise direction three respective measurements were performed. The measurable variables in this study are the absolute value of the vertical deviation of BAL EXzz SVVT from participants of different genders. Using the Independent T-test, the result shows that there were no significant differences in the absolute value of the vertical BAL EXzz SVVT difference between the gender ($p<0.05$). It shows that the influence of gender on findings is negligible. The average value of the absolute value of the vertical deviation was determined to obtain the normative results. The normative value of BAL EXzz SVVT in this analysis was found within the range of -13.5 degrees to -4.0 degrees. In general, BAL EXzz SVVT is one of the good tools for vestibular assessment, in particular for the controls of the otolith function, since it shows no impact on gender differences in the difference in angle between healthy adults. However, more study with larger samples needs to be conducted in the future, so that we can obtain better outcomes on the research findings.

Keywords: SVVT, bucket method, BAL EXzz, MVVSS, vestibular assessment

RO_11

Does Body Mass Index (BMI) Affects the Performance in Prayer by Muslims?

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Abstract

Introduction: Muslims need to adopt several postures that require deep flexion of the knee and hip to perform daily prayer obligation. We conducted a cross-sectional study to determine the correlation between body mass index and the range of motion of the joints of the lower limb. **Methodology:** 115 young male adults aged between 20 to 30 years were recruited. A standard goniometer was used to determine the active and passive range of motions of the hip and knee joints in various postures during prayer. Factors analyzed include body mass index (BMI), length of the lower limbs, and circumferences of the abdomen and limbs. **Results:** The mean of the passive hip flexion and passive knee flexion were higher compared to other normative range of motion database. The BMI demonstrated a significant correlation with the passive range of motion of the knee joint but not with the hip joint. **Conclusion:** The ROM involved for prayers was more for the knee joint and less for the hip joint, reflecting a higher knee flexion angle compared to hip flexion is necessary to attain the sitting postures. BMI has a significant linear negative relationship with the knee passive ROM, hence the ability to perform specific postures in prayer.

Keywords: body mass index, hip joint, knee joint, Muslim prayer, range of motion

RO_12

Sacral Tuberculosis : Never Ignore Buttock Pain

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Abstract

Isolated sacral tuberculosis (TB) is a rare entity comprising only 5% of all spinal TB. Its rarity might delay the diagnosis thus worsening the prognosis of this curable disease. Here we presented a case of a 41-year-old gentleman came in with prolonged fever for 2 months and 6 months history of right buttock pain which radiated to right thigh region. Patient had weight loss, however denied history of TB contact. On examination, the patient looked cachexic and feverish. There was tenderness at sacral region. Neurological examination was intact. He was admitted to ward for pyrexia of unknown origin. On CT abdomen and pelvis revealed multi-loculated collection and sacral bony destruction at level of S1-S4. He was started with anti-tubercular therapy before the biopsy. On investigation, Mantoux test, sputum for acid fast bacilli and MTB C&S were negative. The patient underwent transpedicular biopsy of left and right L5 to establish diagnosis. Histopathological report suppurative granulomatous inflammation. Otherwise bone biopsy for MTB C&S and polymerase chain reaction were all negative. After 4 months on antitubercular chemotherapy, the patient responded well. His buttock pain was improving and able to ambulate without support. The sacrum is an uncommon site for tuberculosis and the incidence of neurological symptoms is relatively low. The prognosis is good if correct and rapid and correct diagnosis is made. Sacral TB must be considered as one of the differential diagnosis when patient presented with isolated buttock pain.

Keywords: sacral, tuberculosis, granulomatous, buttock pain, cachexic

RO_13

Psychological effect of critical illness experience on family members in the Intensive Care Unit (ICU): A scoping review

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Abstract

Hospitalization of patient to an Intensive Care Unit (ICU) is a major crisis in lives of the family members leading to an intensely stressful experience. Depression, anxiety and stress are the common forms of psychological distress which may be experience by the ICU patient's family members. Directly or indirectly, psychological distress can give certain impacts on individuals behaviourally or physiologically and may increase the chances to develop other health problems.

The aim of this review is to investigate work published on the prevalence of psychological distress, factors affecting and the impact on individual, patients and the whole family to promote psychological well-being and health.

A comprehensive and systematic search was performed using Scopus, Web of Science, Goggle Scholar, ScienceDirect and CINAHL, Medline/ EBSCOhost. English-language articles were retrieved, and data extracted on study design, sample size, sample characteristics and outcomes measured. The review follows the PRISMA-ScR checklist.

From 2010 till 2020 references, 23 studies were identified for inclusion. Three (3) key themes were identified: (a) Prevalence of psychological distress; (b) Factor affecting of family distress in the ICU; (c) Implication of psychological distress to the family members.

Family members with a critically ill patients have moderate to major symptoms of psychological distress and it can give negative impact to patient and family members. Future research might include family in the design of interventions, provide details of the implementation process to reduce psychological distress among family in the ICU.

Keywords: psychological distress, family members, Critical Care Unit

RO_15

Subjective Visual Vertical (SVV) Finding in Healthy Adults: Comparison Between Clockwise (CW) And Counterclockwise (CCW) Condition

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Abstract

Subjective Visual Vertical test (SVVT) is an assessment that we can do to rule out vestibular function status specifically the function of the utricle in the inner ear. The purposes of this test are to assess the perception of verticality or to detect abnormal subjective tilt. In normal persons, the ability to perceive verticality is quite good. This ability depends on input from visual, vestibular, and somatosensory systems. Both utricle and saccule contribute to the sense of verticality and horizontality. This study aimed to compare the clockwise and counter clockwise conditions for BAL EXzz SVVT findings among healthy adults aged 18 to 35 years (mean age of 23.10 years). This was a repeated measures study that recruited 30 healthy adults (50% were males and 50% were females). After undergoing screening by using Malay Version Vertigo Symptom Scale (MVVSS), the participants underwent BAL EXzz SVVT testing using bucket method for the clockwise condition and then proceed with the counter clockwise condition. The SVVT was carried out according to the standard protocol and three measurements were made on the clockwise direction and three on the counter clockwise direction. The examiner selected the starting point, the subject then rotated the bucket and it stopped when the subject considered the line reached the vertical position. The results showed that there is statistically significant difference between clockwise and counter clockwise readings ($p<0.05$). However, there is no significant correlation between clockwise and counter clockwise conditions. In conclusion, BAL EXzz SVVT is a quick, non-invasive, and extremely reliable test to evaluate the structural and function of the utricle and saccule. SVV test can be measured with both clockwise and counter clockwise conditions.

Keywords: SVVT, BAL EXzz, MVVSS, verticality, horizontality, clockwise

Scope: Recent Advancements of Research in Medical Imaging

MO_1

A Combined Approach between Enhancement and Segmentation of Digital Mammograms to Improve Breast Cancer Detection

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Abstract

Breast cancer is a second leading cause of cancer death among women. Digital mammograms are used to detect breast cancer especially at early stage. However, digital mammogram suffers from low contrast images due to the low exposure factors used. The aim of this study is to propose a new approach to improve breast cancer detection by combining enhancement and segmentation techniques, namely, Fuzzy Clipped Contrast-Limited Adaptive Histogram Equalization with Anisotropic Diffusion Filter (FC-CLAHE-ADF) to further reduce the noise and improve the mammographic appearances. A total of four digital mammograms were retrieved from Mammographic Image Analysis Society (MIAS) database. These digital mammograms contain various background tissue and abnormalities. The new proposed FC-CLAHE-ADF technique has adopted combination of histogram- and fuzzy-based enhancement techniques. This FC-CLAHE-ADF combined with Otsu thresholding segmentation method to improve the segmentation of breast cancer detection. The resulting images of FC-CLAHE-ADF are able to reduce noise and preserve details. Thus, enhanced digital mammograms provide better visualization and segmentation without segmenting any unnecessary details. This novel FC-CLAHE-ADF technique has provided the most superior results.

Keywords: Breast imaging, digital image processing, histogram equalization, mammography

MO_2

Lumbosacral Radiography Examination Technology of Lateral Wedge Projection in the Low Back Pain Case

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Abstract

Low back pain is a disease whose main symptom is aching or aching in the lower spine. In supporting the diagnosis of low back pain, lumbosacral radiological examination is needed. In general, lumbosacral vertebra examination uses Posterior Antero (AP) and lateral projections. This type of research is literature study research. This research was conducted by comparing radiographs of lumbosacral vertebrae with lateral wedge or non-wedge projections with cases of low back pain. The results showed that the examination procedure with lateral wedge projection can give a clearer picture of the vertebrae and is easier to diagnose low back pain. On lumbosacral examination, lateral wedge projections can reveal L1-L4 intervertebral foramen anatomy, vertebral corpus, intervertebral space, spinous process, and L5-S1 intervertebral joint.

Keywords: Low back pain, Lumbosacral examination, Wedge lateral projection

MO_3

Acute Abdomen Radiographic Examination Techniques in Ileus Case

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Abstract

The radiographic examination technique used to diagnose ileus cases is the acute abdominal radiographic examination technique. The technique of acute abdominal radiography can be performed in three routine projections namely supine (anteroposterior) AP, erect (anteroposterior) AP, chest (posteroanterior) chest and also contains one special projection namely LLD (left lateral decubitus). The purpose of reading this scientific article is to study the technique of acute abdominal radiographic examination in ileus cases. The method used is literature study research. Showing acute abdominal radiographic examination techniques in cases of ileus done with AP and LLD projections that can produce the clinical information needed and the radiation dose received by the patient.

***Keywords*:** Ileus, Anteroposterior, Posteroanterior, Left Lateral Decubitus

MO_4

Thorax CT Scan Examination Techniques in Cardiac Case

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Abstract

Thorax is a cavity that is restricted and surrounded by thoracic walls formed by bone, cartilage, and muscle. In the thoracic cavity there are two rooms namely the lungs and mediastinum as well as the process of the respiratory system and blood circulation. Organs located in the chest cavity namely; esophagus, lungs, liver, heart, blood vessels and lymphatic ducts. The purpose of this study was to determine the Thorax CT Scan procedure in Cardiac cases. This research uses descriptive qualitative method with observational case study data collection approach from YouTube and journals. Research time in June 2019, conducted on one patient. The results showed that the Thorax CT Scan technique was performed in the supine patient's position and only using axial cuts using 5 mm thick slice, was enough to establish the diagnosis.

Keywords: CT scan, Thorax, Cardiac

MO_5

CT Scan Examination Technique for Thoracic Scan with *Non-Small Cell Lung Cancer* Case

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Abstract

Lung cancer is a disease characterized by uncontrolled cell growth in lung tissue. The main types of lung cancer are SCLC (Small Cell Lung Cancer) or referred to as wheat cell cancer, and NSCLC (Non Small Cell Lung Cancer). Lung cancer can be diagnosed using CT Scan Thorax. This research uses observational methods and makes comparisons through journals, videos from YouTube, and also library research. When this research was conducted from 15 June 2020 to 18 June 2020. Thorax CT scan results show a rounded mass density, with firm borders and smooth regular edges. Benign pulmonary mass appearance clinically and radiologically. The first result is squamous cell carcinoma but the last result is teratoma. Thorax CT Scan procedure in the case of NSCLC (Non Small Cell Lung Cancer) is in accordance with what is in theory and guided by the permanent procedure of CT Scan of the thorax..

Keywords: *CT scan, lung, Cancer.*

MO_6

Head CT scan Examination Techniques in Cerebrovascular Accident (CVA) Bleeding Case

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Abstract

Head CT-Scan Examination Techniques in two literature journals are carried out with several examination techniques and procedures. The two journals differ in the range used, namely one range with slice thickness of 10 mm and two ranges with slice thickness of 2 mm and 3 mm. This type of research is literature research with a case study approach. The time of the study was carried out from 22-25 June 2020. In this study, the authors collected data from the literature. The results showed that the two journals had differences in the two ranges used. The first journal used a range, because it was considered to reduce scanning time and reduce the dose received by patients. Whereas the second journal uses two ranges, because it is considered important to see pathology in more detail.

Keywords: *Head CT-Scan, Cerebrovascular Accident (CVA) Bleeding, Slice thickness*

MO_7

Radiographic Examination Techniques in Non-Cooperative Patients Using Dextra Temporal Fracture Case

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Abstract

Patients with clinical temporal bone fractures due to accidents are emergencies that must be taken x-ray immediately. If the patient's condition is unconscious or non-cooperative, radiographic examinations are still needed that prioritizes the safety and comfort of the patient to be able to establish the diagnosis. This study aims to describe the management of the examination of Cranium, projections made and how to do the stages of film washing well. The method used in this research is to use the literature study method, namely obtaining data from books and journals. The results of this study are that patients with clinically dextra temporal bone fractures are safer and more comfortable using radiographic examination techniques with AnteroPosterior (AP) projections and Lateral projections with the patient's position supine or sleeping on his back on the examination table or gurney. Conclusions and suggestions from this study are that in non-cooperative patients movement should not be carried out too much and in clinical fractures should not be forced to carry out examinations with projections of AP erect or Lateral with the patient's position sleeping on his side or rotated laterally.

Keywords: Cranium, frakture, lateral, non kooperatif, AnteroPosterior

MO_8

Non-Contrast Head CT Scan Examination Techniques in Cases of Brain Tumors

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Abstract

Non-Contrast CT Scan in Brain Tumors is a special examination conducted to see tumors in the brain. In this examination, it does not use contrast media, but the information needed from the image is still clearly visible and in this examination, 3D MIP images are also added. The study aims to determine the non-contrast head CT Scan technique in brain tumor cases. The study is conducted by observation on video. Research time June 21 to June 27 2020. The result showed that non-contrast head CT Scan in cases of brain tumors using the vertex range to the mandible with laser settings,namely the mid coronal line and mid sagital line are arranged in the middle of the object. And additional 3D MIP images so they are even more informative in showing their pathology. Its recomended to have a CT Scan with a brain tumor using contrast media.

Keywords: CT-Scan, Brain, Tumor.

MO_9

The Examination Technique of Cranium of Cervical Root Syndrome

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Abstract

Cervical Root Syndrome or cervical nerve root syndrome is a condition caused by irritation or suppression of the cervical nerve root. The most common cause is a disruption in the spinal nerve foramen due to a combination of several factors namely reduction in disc height, degenerative changes. The number of cases of Cervical Root Syndrome makes the writer interested in studying Cervical Radiology examination. The author of data collection by observing (observation) and documentation.

Keywords: Cervical, Cervical Root Syndrome.

MO_10

Thorax CT Examination Procedure with Ribs Fracture Clinical

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Abstract

Costae fracture is the continuation of bone / cartilage tissue continuity caused by involuntary at site specifications on the costae bone. Fracture on the ribs is a disorder that often occurs due to blunt trauma to the thoracic wall. Sharp trauma is less likely to result in rib fracture, due to the narrow surface area of the trauma, so that the force of trauma can pass between the ribs. The study was conducted to determine the examination procedures and thoracic examination techniques with clinical ribs fractures and improve knowledge and ability to learn, identify, and analyze the thoracic examination. The method used in this research is qualitative research with literature studies by collecting data relating to the Inspection Technique and Thoracic Examination Procedure with Ribs Clinical Fracture. . In the thoracic examination with clinical Ribs fracture using AP and PA projections. This is done on the grounds that with these projections it can show the fracture part of Ribs (Costae) and can already establish a diagnosis.

Keywords: Costae Fracture, Examination Procedure.

MO_11

Evaluation of A Micro CT Scan System Based on Digital Image Correlation Profile of Multiple Radiographs

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Abstract

X-ray computed tomography system is a non-destructive testing tool which can visualize the internal structure of an object. However, the reconstruction image result can be disturbed by artefacts. The centre of rotation position is a factor that needs to be controlled to avoid artefact. That is why a method to evaluate the performance of CT system is needed. The method is developed using x-ray micro-CT system and evaluated based on Digital Image Correlation. DIC measurement is based on tracking correlation function of a group of pixel which have a unique grey value from the test images and a reference image. The DIC value of multiple radiographs and the reference radiograph are calculated and then plotted by the angle of rotation to get the DIC profile value. The multiple radiographs are obtained from scanning object by simulation and experiment using CT Simulator software and x-ray Micro-CT system at Fisika Atom dan Inti FMIPA UGM laboratory.
The results show that the ideal DIC profile value of radiograph image from simulation is a constant straight line for every size variation of the object. However, from the experiment, the result show deviation toward –y for every size variation of the object that indicate the shift of COR position in micro-CT system. The result also similar using centre of mass profile value as comparison.

Keywords: CT scan, radiograph, multiple images, digital image correlation

MO_12

The Use of Digital Fundus Image Analysis of Retinal Vessel Diameter using Fiji Image J in Diabetic Retinopathy Rodent Model

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Abstract

Purpose: To evaluate the use of Fiji Image J application for digital fundus image analysis of retinal vessel diameter in diabetic retinopathy rat model.

Methods: Male Sprague-Dawley rats, weighing 200-250 grams, were divided into two groups; normal and diabetic. The diabetes was induced by intraperitoneal (IP) injection of streptozotocin (STZ, 55 mg/kg body weight). Normal rats received IP citrate buffer. Fundus images were captured at week 0, 6 and 12 post-induction to observe changes in retinal veins and arteries. Images obtained were then analysed using Fiji Image J software.

Results: Retinal venous diameter was increased in both groups at week 6 and 12 compared to baseline ($p<0.05$). However, no significant differences were seen in the retinal venous diameter at week 12 compared to week 6 in both groups. When comparing between the groups, retinal venous diameter in diabetic group was significantly greater compared to normal group at week 6 and 12 by 1.37- and 1.35-folds ($p<0.001$), respectively. For the retinal arterial diameter in diabetic group, an increase was observed at week 6 and 12 compared to baseline by 1.17- and 1.2-folds ($p<0.05$) respectively, however, similar changes were not observed in normal group. There was also no significant difference between the retinal arterial diameter of normal and diabetic group at week 6 and 12.

Conclusion: Retinal vessels diameter analysis of fundus images using Fiji Image J can be utilized to determine quantitative changes between normal and rats with STZ-induced diabetic retinopathy.

Keywords: diabetic retinopathy, fundus imaging, retinal vessels diameter, streptozotocin, digital analysis

MO_13

An Overview of MyPocket GFR App

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Abstract

The glomerular filtration rate (GFR) is an important indicator to measure the kidney function. The gold standard of GFR is based on 24-hour urine collection. But, this method is inconvenient and need more time to assess the GFR. The formula can be used to calculate the GFR based on the blood level of creatinine. The paper provides a details of the MyPocket GFR app that was developed as a calculator to calculate GFR for the Malaysian population. The app allow the user to make a fast calculation by submit the patient's information based on age, gender, body weight, and serum creatinine value. This app comes with three formula which are MDRD formula, CKD-EPI formula, and Cockcroft-Gault formula. The app is only can be used for Malaysian as the formula was revised according to the Malaysian population. This can be very helpful for the Malaysian health professional to get the direct calculation of GFR and it will also generates an output of the kidney disease's stage according to the calculated GFR value. For the improvement, the app can have more comprehensive instruction or information in managing the kidney disease so it can be also used by health professionals as a guidance. The name of the app was set as MyPocket GFR as MY was refer to the Malaysia.

MO_14

Impact of the Covid-19 Pandemic on Radiography and Radiotherapy Practice

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Abstract

This survey aimed to evaluate the impact of the COVID-19 pandemic on radiography and radiotherapy practice in Malaysia. An online cross-sectional survey was conducted from July to October 2020 among radiographers. The survey gathered information regarding 1. Demographics 2. Impact of the COVID-19 pandemic on professional practice 3. Infection control and 4. COVID-19 related stress. A total of 214 (female, n = 148 and male, n = 66) responses were received, comprising 79.9% diagnostic and 20.1% therapeutic radiographers from across Malaysia. The radiographers work in Kuala Lumpur (39.3%), Selangor (16.8%), Perak (15%), Penang (6.6%), Putrajaya (6.5%), Johor (4.7%), Sabah (3.7%), Kelantan (2.3%), Sarawak (1.4%), Negeri Sembilan (0.9%), Kedah (0.9%) and each 0.5% from Pahang, Melaka and Terengganu. Regarding the impact of the COVID-19 on professional practice, 71% agree that the radiographers are a part of the major frontline and 50.9% increase their workload especially among diagnostic radiographers, X^2 (1, N = 214) = 157.76, p = .0001. In term of infection control, 77.1% believed that they have a great understanding of how the COVID-19 virus transmitted and 71.9% understand the principle of infection control. Furthermore, 59.8% stated that their facility provides adequate personal protective equipment and 57% working institution provides adequate training specifically to prepare you for handling patients during the COVID-19 outbreak. During the pandemic, only 29% feel frequently stressed about work and 62.1% sometimes. Most of the radiographers rate their level of stress between 5 to 8 from 1 (no stress) to 10 (highly stress) scale. In conclusion, an increase in workload occurred during the pandemic that can lead to an increase in the level of stress. However, most working institutions have provided adequate personal protective equipment and training to aid the radiographers facing the COVID-19 outbreak.

Keywords: Impact, COVID-19, radiography, radiotherapy

MO_15

The Effect of Electric Flows Variation of X-Ray Tube (Ma) On Free Radical Formation in Water

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Abstract

Most of the human body consists of water (80%). If the water is irradiated,and the process of absorption of radiation energy by water molecules occurs in the process of radiolysis of water; it will produce free radicals (H * and OH *). Free radicals are free atoms or molecules, are not charged and have an unpaired electron in its outer orbit. This situation causes free radicals to become unstable, highly reactive and toxic. The same free radicals formed can react to each other to produce toxic hydrogen peroxide molecules. This study aims to determine the effect of electric current variations of x-ray tubes (mA) with the constant exposure factor of mAs to the formation of free radicals in water. The method applied quantitative experimental by mixing 200 ml Aqua distillate with 5 ml $KMnO_4$ as much as 5 ml and 4 ml and H_2SO_4 as much as 1 ml, then the radiation used exposure factors of 40 kV and 90 kV, using variations of 50 mA, 100 mA, 200 mA, 400 mA with fixed mAs conditions. Furthermore, the solution was examined using spectrophotometry with a wavelength of 530 nm. In addition, averaged data results were obtained from spectrophotometric analysis using Microsoft Office Excel applications. The results showed that large changes in kV and mA with fixed mAs (different times) will not affect the formation of free radicals in water because the multiplication between mA and s indicated that the intensity of the radiation coming out of the tube was similar. However, if a large change of kV and mA with similar mSec, hence this would result in an increase in the amount of intensity of radiation coming out of the tube which means that there would be an increase in the formation of free radicals in the water.

Keywords: Radiolysis, Electrolysis, mA, H * OH *

MO_16

Analysis of Radiation Dose on Eyes on Head CT Examination

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Abstract

Head CT is the most frequent examination in every hospital in Indonesia. Radiation protection on Head CT is important because it has sensitive organ that is eyes. The purpose of this study was to determine the radiation dose to the eyes of Head CT comparised with the value of dose limits specified by ICRP No. 87 of 2000. This type of research is quantitative with observational approach. Measurement of radiation dose conducted on 10 samples of patients using two different scanogram every 5 patients. The first four patients using scanogram parallel of OML and 5 next patient using scanogram parallel (Supra Orbital Meatal Line) SOML. Measurement of radiation dose using chip-TLD100 stuck on one surface of the patient's eye skin. Results of measurement of radiation dose are presented in tables and compared with standard-dose CT scans according to ICRP No. 87 of 2000. The results showed that scanogram parallel with OML get results (mGy 53.889, 50.729 mGy, mGy 60.407, 70.952 mGy) and scanogram parallel to SOML get results (7.265 mGy, 6.944 mGy, 8.747 mGy, 6.411 mGy). The use of scanogram parallel with OML was produced a dose that exceeds the standard dose CT scans according to ICRP No. 87 in 2000 while scanogram parallel with SOML generated dose was safe and under the standard-dose CT scans according to ICRP No. 87 in 2000. A Head CT is advised to use scanogram parallel to SOML because it was safer to the eyes.

Keywords: *Head CT, Radiation Dose, OML, SOML*

MO_17

Right Trochlear Nerve Palsy as an Uncommon Symptom of Arachnoid Cyst

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Abstract

Most arachnoid cysts are congenital intracranial lesions, arising in the early embryonic stages from a minor anomaly of the flow of cerebrospinal fluid through the primitive mesenchyme. Usually these cysts remain asymptomatic throughout life. Diplopia caused by an arachnoid cyst is very rare. This paper is a case report of a 56 years old female with underlying hypertension presented to us with complaint of vertical diplopia for 1 week. Her symptom started sudden at rest and continuous. There was no history of trauma or illness. She denies any reduced vision. Neuro-ophthalmology examination revealed visual acuity of 6/6 in both eyes. Ocular motility showed very minimal limitation of abduction in right eye. There was diplopia in all gaze except when she is looking upward. Visual fields were normal. The anterior segment was unremarkable. Examination of fundus were insignificant. Hess test confirmed the presence of right superior oblique paresis. We proceeded with neuroimaging and on Computed Tomography (CT) imaging, a well-defined non enhancing hypodense lesion noted at retrocerebellar region which may represent arachnoid cyst. It causes minimal mass effect to adjacent cerebellar folia. She was subsequently seen by our Neurosurgical team and Magnetic Resonance Imaging (MRI) was done which further confirmed the diagnosis. We present a rare case of arachnoid cyst presenting as acquired isolated fourth nerve palsy in adult. The importance of obtaining appropriate neuroimaging and identifying locations of the cyst in such subtle condition should be kept in mind.

Keywords: Arachnoid Cyst, Right Trochlear Nerve Palsy, Case Report

Scope: Featuring New Trends of Research in Nutrition and Dietetics

NO_1

Utilization And Perception Of Complementary And Alternative Therapies (Cats) Among Obese And Overweight Individuals In A Malaysian Public University

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Abstract

Obesity and overweight are a growing concern that is frequently debated which can affect individual well-being. Despite a multiplex of available weight management programs, interest in the use of complementary and alternative therapies (CATs) has soared in recent years. This study intends to 1) assess the utilization and perception toward CATs among obese and overweight participants and 2) assess applicability, practicality, reliability and validity of the UPCATs-Malay. It was conducted cross-sectionally on 30 students and staff. Responses were analyzed using SPSS (v21).Among the participants (age = 26.17±8.23 years; female = 66.7%; students = 63.3%), 40.0% were overweight and 60.0% were obese. Overall, 23.3% of the participants had previously used some types of CATs to lose weight, with herbal or dietary supplements (20.0%) being the most common. Participants' attitudes towards CATs were mostly influenced by the internet (93.3%). Most believed that CATs modalities were safe (53.3%) and not a threat to public health (70.0%). The majority of participants (53.3%) were also considering joining any CATs-based weight management programmes. Additionally, the questionnaire was considered clear, comprehensive and not difficult to complete (< 5 minutes). The overall reliability was 0.711 (domain range = 0.641-0.881). Majority of individual items in UPCATs-Malay correlated better with their domains compared to other domains supporting validity. Overall, positive perceptions towards CATs were apparent and the questionnaire was reliable and valid. Further approaches should be taken especially on the identification of safe, viable CATs modalities and their role in weight management.

Keywords: obesity, overweight, complementary and alternative therapies, weight loss

NO_2

Microbiological Status of Food Contact Surface (FCS) and Food Handles Hand (FHH) at Selected Cafe and Restaurant in Long Beach Redang Island, Terengganu.

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Abstract

Food safety and food hygiene are an important element for food handlers to consider especially for commercial foodservice located in isolated but populated tourism areas such as island destination. Few studies have reported on the microbiological status of café and restaurants, which food provision mainly involved local and international tourists. This case study aims to examine the microbiological status of Food Contact Surface (FCS) and determine Food Handler's Hand (FHH) at selected café and restaurant in Redang Island, Terengganu. A total of eight restaurants and cafes located in Long beach, the key tourist enclaves were selected using snowball sampling. The environmental samples collected included swabs from food handlers' hand, chopping board, knives and freezer's internal surface. Microbiological analysis for total plate count (TPC), total coliform, Coagulase Positive *Staphylococci*, *Escherichia coli, Bacillus Cereus* and *Salmonella spp.* from FCS (n=12) and FHH (n=8) samples were carried out. Samples were taken by following the procedure described by FSQP (2013). All statistical analyses were performed using the Statistical Package for Social Sciences, SPSS Version 20. Microbiological analysis showed the highest unsatisfactory results accounted for total plate count (90.0%) followed by total coliform (60.0%), Coagulase Positive *Staphylococci* (55.0%) and less than 5.0% of samples showed the presence of *Escherichia coli.* However, *Bacillus Cereus* and *Salmonella spp*. was not detected in any of the samples tested. This study suggested that there is a need to have more effective training program of food handlers in café and restaurant in order to bring into positive behaviour toward good hygienic practices to ensure safe and hygienic food provisions at island destination.

Keywords: Redang Island, food contact surface, food handlers' hand, restaurant, microbiological analysis

NO_3

LC-MS Identification of Phenolic Compounds, Antioxidant and Anti-Inflammatory Activity of Freeze-Dried Melon Manis Terengganu Peel Extracts

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Abstract

Melon Manis Terengganu (MMT) or also known as *Cucumis melo* var. Inodorus cv. Manis Terengganu 1 are usually peeled prior to consumption which consisted of 28-30% peel. This study aimed to quantify the polyphenols and flavonoids content, identify the polyphenolic compounds as well as evaluate the antioxidant and anti-inflammatory activity of freeze-dried MMT peel aqueous extract. The total phenolic and flavonoid contents were determined spectrophotometrically by gallic acid and quercetin standard curves, respectively. Antioxidant activity was explored using 1,1-diphenyl-2-picrylhydrazyl (DPPH) and 2,2-azino-bis (3-ethylbenzothiazoline-6-sulfonic acid) diammonium salt (ABTS) assay whereas protein denaturation inhibition and human red blood cell (HRBC) membrane stabilization assay were used for anti-inflammatory activity examination. Next, liquid chromatography-mass spectrometry (LC-MS) was applied for phenolic compounds identification. The results reported that the total phenolic content was 12.15 (0.73) µg GAE/mg while total flavonoid content was 1.58 (0.76) µg QE/mg. The IC_{50} of DPPH and ABTS assay were 25.05 (2.69) mg/mL and 2.35 (0.23) mg/mL respectively. Moreover, IC_{50} of 126.42 (1.51) mg/mL and 47.64 (0.38) mg/mL were observed in protein denaturation assay and HRBC membrane stabilization assay respectively. LC-MS results revealed the presence of polyphenolic compounds such as kaempferol 3-(6''-sinapylglucosyl)-(1->2)-galactoside), isoorientin 7-O-(6'''-O-(E)-feruloyl)glucoside and isoscoparin 2''-(6-(E)-ferulylglucoside) in the sample extract. In summary, the freeze-dried MMT peel aqueous extract exhibited antioxidant and anti-inflammatory properties probably attributed to the presence of these polyphenolic compounds.

Keywords: LC-MS, phenolic compounds, antioxidant, anti-inflammatory, Melon Manis Terengganu peel, freeze drying

NO_4

Knowledge, attitudes and practise of mother's children feeding and their relationship with the nutritional status of fishermen's children under 5 years of age in selected districts of Terengganu

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Abstract

In Malaysian children aged two to four years, the prevalence of malnutrition has increased over the years, as it is more susceptible to nutrient failure. Mother's nutritional knowledge, attitude and practise are important to make sure that she properly feeds her child to prevent malnourished children. To date, however, fewer research has focused on the knowledge, attitude and practise of low-household income mother feeding, particularly in fishermen's communities in Terengganu. This cross-sectional study aims to assess the knowledge, attitude and practise of the maternal nutritional status of fishing children under the age of five in Terengganu. This study is carried out via a home visit with 60 mothers and 60 children (55% boys, 45% girls) 2-4 years old. Modificated questionnaires assessed mom's knowledge, attitude and practise in feeding, and assessed children's anthropometric status measurement by height-for-age and BMI-by-age. Spearman's analysis of correlation revealed the absence of BMI association with mother's child feeding knowledge (p=0.342, r=-0.125), attitudes (p=0.357, r=0.121) and practises (p=0.587, r=0.073). Meanwhile, mother's child feeding knowledge (p= 0.627, r= 0.064), attitude (p= 0.9982, r= -0.002), and practices (p= 0.709, r= -0.049) were also not associated with the children height-for-age. A holistic approach involving parents, communities and government agencies should be developed in order to strengthen the knowledge, attitude and practise of the child, particularly in the lower household income family.

***Keywords*:** child feeding, knowledge, attitude, practise, fishermen, Malaysia

NO_5

Application of newly developed Cardiovascular Disease (CVD) risk calculator among healthcare providers in predominantly Malay population state in Malaysia

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Abstract

Guidelines for the primary prevention of cardiovascular disease (CVD) recommend the use of risk-assessment methods to identify high-risk patients who can benefit from lifestyle changes or drug treatment. Although all these risk-prediction methods are based on the same principle, they produce different risk estimates. The aim of this study was to compare the agreement of the most recently introduced cardiovascular risk-prediction method; Globorisk with an established globally accepted CV risk-prediction method; General Framingham CVD risk score when applied to healthcare providers aged 40 and above. Four different risk-assessment methods; namely Globorisk Office, Globorisk Lab, Framingham 10-year CVD BMI and Framingham 10-year CVD lipid were applied to 520 healthy primary healthcare staffs across Kelantan State, Malaysia. The extent of concordance among the different risk-assessment methods was determined by kappa test for categorical classification (Low Risk, Moderate, High and Very High). Interclass correlation (ICC) analysis and was applied for continuous risk score value by different methods. For categorical agreement, The Globorisk Office and The Framingham 10-year CVD BMI has Kappa value of 0.622 ± 0.08 as compared to the other pair (Kappa value = 0.611 ± 0.12). For numerical risk score agreement, the ICC values of both pairs are 0.816 ± 0.03 and 0.884 ± 0.03. In conclusion both CVD risk calculator pairs demonstrated both substantial Kappa value and good ICC values. These findings suggest both Globorisk and Framingham could be used for Malaysian population for CVD risk estimation and will be suggested to be incorporated into Malaysia CVD Prevention Guideline for primary setting

Keywords: CVD, risk score, calculator, performance, agreement, prevention (maximum 6 words)

NO_6

Calcium Intake in Relation to Knowledge and Beliefs of Osteoporosis in Female Undergraduate Students of Universiti Sultan Zainal Abidin (UniSZA)

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Abstract

Osteoporosis (OP) is a serious public health concern associated with long-term calcium deficiency. Malaysian adolescents were found to have inadequate calcium intake, characterised by inability to meet the Recommended Nutrient Intake (RNI) of 1000mg calcium per day. Hence, the aim of this study was to determine the association between knowledge and beliefs of OP with calcium intake among female undergraduate UniSZA students. A cross-sectional study with a total of 274 students aged 18 to 25 years old were recruited from six selected faculties. Food Frequency Questionnaires (FFQ), Osteoporosis Knowledge Test (OKT), and Osteoporosis Health Belief Scale (OHBS) were used to assess students' calcium intake, OP knowledge and beliefs, respectively. Results showed that majority of students had insufficient daily intake of calcium (median=742.46, IQR=790.95) with only 13.9% of them had met the recommendation. Besides, they were lacking in OP knowledge, and did not perceive themselves to be susceptible to OP but did consider OP as a serious disease. A correlation test revealed no evidence of association between calcium intake and OP knowledge. However, calcium intake was negatively correlated with perceived barriers to exercise (r=-0.167, p=0.006), and perceived barriers to calcium intake (r=-0.142, p=0.019). These findings suggest that future OP prevention programs may need to focus on increasing risk awareness and motivation to healthier dietary choices so that sufficient intake of calcium among young adults is achieved.

Keywords: calcium intake, osteoporosis, osteoporosis knowledge, osteoporosis beliefs, female undergraduate students

NO_7

Household food insecurity, academic performance and nutritional status of fishermen's children in Kuala Terengganu and Kuala Nerus, Malaysia

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Abstract

Fishermen 's children are one of the marginalized groups with high risk for insufficient food consumption, which could have a detrimental effect on their academic performance, wellbeing and nutritional well-being. However, only a few studies have been conducted to assess the relationship between food insecurity, academic performance and nutritional status among fisherman's children, particularly in Malaysia. This study was therefore conducted to establish the relationship between household food insecurity, academic performance and the nutritional status of fishermen 's children in Terengganu. Methods: This was a cross-sectional study involving fishermen's children aged 7 to 11 years old. Results: A total of 101 fishermen 's children participated in this study. The prevalence of children with food security and food poverty was 56.4% and 43.2% respectively. It was found that 24.2 percent of fishermen 's children were strong at academic level, 51.3 percent were moderate at academic level, and 24.2 percent were poor at academic level. BMI prevalence for children who were normal 44.3 per cent and not normal was 19.6 per cent when obese was 4.4 per cent, overweight was 1.3 per cent, thinness was 8.2 per cent, followed by extreme thinness was 5.7 per cent. Obesity was 14.0% and 14.4% respectively. For height-for-age, it was found that for stunting, the percentage reported was marginally higher, approximately 5.7 per cent, for normal 56.3 per cent, tallness 1.3 per cent, followed by severely stunted 06 per cent. Conclusion: Thus, there is no association found between household food insecurity and academic performance $X2(1, n=101) = 1.891$, $p= 0.169$. There is also no association found between household food insecurity with BMI-for-age $X2(1, n=101) = 1.105$, $p= 0.293$ and height-for-age with Fischer exact value = 0.093.

Keywords: household food insecurity, BMI, fishermen's children, academic performance, nutritional status

NO_8

Association between Weight Status and Body Image Perception among Female Adolescents in Terengganu

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Abstract

Body image is the picture of how our body being perceived and stored in our mind. During puberty, many changes occurs in the body of an adolescents. Often, change in physical appearance has impact on the levels of body's satisfaction. Thus, it is crucial to assess the body image among adolescent as to ensure the wellbeing of both physical and mental health are at its optimal stage. Therefore, the aims of the present studies is to assess the body image perception and body fat percentage of female adolescents and to determine the association between weight status and body image perception among female adolescents. This cross-sectional study was conducted among 198 female adolescents in Kuala Nerus, Terengganu. Anthropometric measurements included weight and height, and BMI was determined. Body composition was assessed by using Bio-electrical Impedance Analysis through Bodystat Quadscan 4000 instrument. Body image perception was measured using the Stunkard's Figure Rating Scale and Attitudes towards Body Image that was adapted from Multidimensional Body Self Relation Questionnaire (MBSRQ). Socio-demographic characteristics were determined through self-administered questionnaires. A total of 27.8% of female adolescents were overweight and 1.0 % were obese by body fat. Among the female adolescents, 62.5% of them were dissatisfied with their body image, although 57.5% of them were in the normal weight category. Pearson's chi square test revealed there is association between actual weight status and body image perception among the female adolescents ($p<0.05$). There were very large percentage of adolescents dissatisfied with their body image and weight status was found to have significant association with body image perception. Further study should be carried out to investigate the factors that can possibly lead to the development of dissatisfaction of body image and the risks of getting negative body image in adolescent's phase.

Keywords: Body Fat Percentage, BIA, Body Image Perception, Stunkard's Figure Rating Scale

NO_9

Knowledge, Attitude And Practice Towards Salt Intake Among Hypertensive Residence And Its Associated Factors

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Abstract

Hypertension is a major contributor to cardiovascular disease in Malaysia where at least one among three Malaysian adults have hypertension. Thus, this study aimed to determine the association of socio-demographic factor, anthropometry status, blood pressure, stress level, physical activity level and Knowledge, Attitude and Practice towards salt intake with hypertension among participant in Felda residence in Terengganu. A cross-sectional study was conducted in three FELDA areas in Terengganu among 94 participants aged 18 years old to 64 years old. Socio-demographic data, anthropometry data, blood pressure (BP), stress level, physical activity level and KAP towards salt intake were measured in this study. Stress level was measured using the 10-item Perceived Stress Scale (PSS-10) and the physical activity was assessed using the short version of International Physical Activity Questionnaire (IPAQ). Participants with history of hypertension and on hypertensive treatment were classified as hypertension participants. Independent t-test was performed. Majority of study participants were female (70.3%) with the mean age 54.9 (7.5) years old and mean BMI of 28.5 (5.1)kg/m^2. The prevalence of hypertension in this study was 39.4%. Analysis revealed those determinant factors that significantly associated with hypertension were age (p=0.001), BMI (p=0.001) and waist circumference, WC (p=0.001). Diastolic blood pressure (DBP) was associated with gender (p=0.003). Of sub group (hypertensive group), only 62.2% agreed reducing salt intake is important while 91.9% know that high salt intake can lead to health problem. This study demonstrates the prevalence of hypertension of plantation area among adults in Terengganu. This evidence will be useful for interventional programmes aimed to improve the knowledge thus reduce the prevalence of hypertension among plantation communities.

NO_10

Association between Orthorexia Nervosa Tendency on Health Related-Quality of Life among Health Science Students in Terengganu.

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Abstract

Orthorexia Nervosa (ON) is the obsession of an individual towards good quality of foods and is known to affect quality of life (QoL). However study exploring its relationship with health related quality of life (HRQoL) is still scarce especially among health science students.Therefore, this study aims to investigate the association between ON tendency and HRQoL among health science students. The data for this cross-sectional study were collected from 380 Malaysian health science students from a public university. The orthorexic behaviour and HRQoL were assessed via ORTO-15 and 36-Item Short Form Survey (SF-36) respectively. Pearson's correlation test was used to determine the association between ON and HRQoL score .The prevalence of ON tendency among health science students was 67.1% (mean score: 37.10±4.34) in which 66.3% of students majoring in nutrition-related course and 67.9% of non-nutrition related course prone to ON tendency. Students in nutrition-related course obtained significantly higher HRQoL score in general health (p=0.046), social functioning (p=0.001), role emotion (p=0.037) physical component summary (p=0.031) and mental components summary (p=0.018) compared to their counterpart. However, there was no significant association between ON and HRQoL . The findings from this study add to a growing literature describing the prevalence of ON tendency and HRQoL especially among health science students. Further studies involving the use of more sensitive tools that can better identify ON tendency is needed to ascertain this relationship between orthorexic eating behaviours with self-perceived life qualities.

Keywords: Orthorexia Nervosa, ORTO-15, Quality of Life, Health-related quality of life, SF-36.

NO_11

Association of Caffeine Consumption and Cognitive Performance Among Undergraduate Students aged 18 to 25 years old

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Abstract

Caffeine is natural compound commonly available in coffee, tea and cocoa plants. It is one of the psychoactive drugs widely found in nature. In global, it is extensively consumed especially in beverages not only for its aromatic and taste but more to its main effect, stimulating brain and central nervous system. One of its well-known benefit is its ability to improve consumer attention by blocking adenosine action that act as a central nervous system depressant which explain how consuming caffeine help to improve individual attention. Thus, the aim of this study is to identify is there any association between amount of caffeine intake with cognitive performance among undergraduate students aged 18 to 25 years old. Sociodemographic data such as age, gender, ethnicity and family history were assessed using a questionnaire. The mean intake of caffeine was estimated using the well validated Caffeine Consumption Questionnaire (CaffCO) while the cognitive performance was evaluated using Stroop Task, Digit Symbol Substitution Task (DSST) and Digit Span. Participants were screened for eligibility criteria including those aged within 18 to 25 years old with mentally and physically healthy. A total of 150 undergraduate students with the mean age of 21.2 (SD=1.1) years old were recruited. Majority of them were Malay (92.7%), Muslim (94.4%), single (98.7%) and 92.7% under Degree program. Nearly half of them (43%) had a family history of non-communicable diseases. The mean of caffeine intake for undergraduate student of UniSZA was 35.05 mg/day, considered as a low caffeine user (below than 200 mg/day). Interestingly, of the beverages listed, cola beverages were more prevalent among students with younger age groups of 19 to 21 years (p=0.035) and among men (p=0.016). For cognitive performance, those in younger age of 19 to 21 years old was found to be less accurate in DSST while men performed significantly quicker (mean RTs= 11.7 seconds, p=0.01) in completing congruent trials tested in Stroop Task but less accurate in for DSST (p=0.008) compared to women. However, no significant association of caffeine intake and cognitive performance among undergraduate students. Future studies cover wider population is suggested to provide clearer findings on the association of caffeine and cognitive performance.

Keywords: caffeine, cognitive function, undergraduate

NO_12

Association between Orthorexia Nervosa and Psychological Status among Health Science Students in Terengganu

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Abstract

Orthorexia Nervosa (ON) is an obsession with healthy eating disorder, particularly on food quality rather than quantity. ON shares the same features with other types of eating disorders, charcaterized by the anxiety, depression and stress when transgression of food occurs. However study exploring its relationship with psychological status is still scarce especially among health science students. A cross-sectional study was carried out to investigate the association between ON and psychological among 383 undergraduate students from a public university.The orthorexic behaviour and psychological status were assessed via ORTO-15 and DASS-21 respectively. Pearson's Chi Square Test was used to determine the association between ON and psychological status. The prevalence of ON tendency (score less than 40) among students was 69.4% in which 60.7% of students majoring in nutrition-related course and 39.3% of non-nutrition related course prone to ON tendency. For psychological status, 12.8% of the students reported having abnormal score (moderate-severe). No significant relationship was found between ON and abnormal psychological status with sociodemographic factors; gender (p=0.874), study course (p=0.443) and academic year (p=0.509). However, there is significant association between ON tendency and psychological status (p=0.005). In addition, the findings from this study indicated that ON shares important characteristics with those established eating disorders and the higher prevalence of ON among university students is one of the sign that this orthorexic behaviour may need further attention.

Keywords: Orthorexia Nervosa, Psychological, DASS-21, ORTO-15, Eating Disorder.

NO_13

Somatotype and Cardiovascular disease risk factors among female UMT students with different BMI categories

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Abstract

Somatotype provides quantitative overview of human body. There are 3 major component of somatotype which are endomorphy (relative degree of fatness), mesomorphy (focused predominantly on muscle, bone, and connective tissue) and ectomorphy (reflects linearity and slenderness of build). This study were conducted to determine the somatotype and CVD risk factors among 99 female UMT students with different BMI categories. Furthermore, the relationship between somatotype components with CVD risk factors among respondents were also determined. Somatotype was measured by using the Carter and Health method while CVD risk factors were measured by using standard procedure. Mean somatotype score among all female UMT students was (6.40-5.58-1.02). Endomorphy shows the highest mean value compared to mesomorphy and ectomorphy among all respondents. Higher value of endomorphy were observed among normal and overweight respondents, while mesomorphy value was highest among obese respondents. Majority of the respondents have desirable level of total cholesterol, HDL-c, and triglycerides. Both systolic and diastolic blood pressure, HDL-c and triglycerides shows significant difference with BMI categories ($p<0.05$). The result reveal that somatotype components score have significant relationship with several CVD risk factors among all respondents. But when categorized into specific BMI groups, only endomorphy with total cholesterol ($r=0.371$, $p=0.033$) were observed to be significant among obese respondents. This study suggest that somatotype method may be useful to predict obesity rather than using BMI alone. By categorizing respondents according to BMI categories, only specific CVD risk factors were found to have significant correlation with somatotype.
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Keywords: Somatotype, endomorphy, mesomorphy, ectomorphy, CVD risk factor, BMI.

NO_14

Diet quality as the risk factors of diabetes mellitus type 2

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Abstract

Background: Diabetic Mellitus type 2 (DM2) is metabolic diseases caused by hyper glicemia where the prevalence and incident tend to increase in the world. Diet plays an important role in the development of DM2. Quality of the diet can interpret food pattern based on nutrition guidance and food choice. **Objective:** To identify whether diet quality was risk of DM2 in Kulon Progo Regency. **Methods:** This was an analitical study with case control desain. The case group were diabetic patients registered in Community Health Center in 4 subdistrics in Kulon Progo Regency whereas the control group were non diabetic patients. Respondents were selected purposively. Quality diet was calculated using Diet Quality Index (DQI) from Semi Quantitative Food Frequency Questionaire (SQ-FFQ). Chi square and Wilcoxon test were used to identify risk factor. **Results**: The total score of DQI by the case was 40 and 42 by that of the control. The value of the groups was significantly different ($p<0.05$). The categories of DQI showed significant results in the scores of fatty acid ratio ($p<0.05$; OR=6,5). **Conclusion**: Diet quality by the case was lower from the control group. Ratio of fatty acid ratio became risk factors of DM2 using DQI.

Keywords: diet, quality, index, fatty acid, diabetic mellitus type 2

NO_15

Association Of Cognitive Frailty, Nutritional Status And Risk Of Malnutrition Among Institutionalized Elderly.

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Abstract

Malnutrition is defined as a state resulting from the lack of the ingestion or intake of food that are nutritious which lead to a change in the body composition, which may lead to decreasing physical function and mental function. Therefore, this cross-sectional study was carried out to investigate the association between risk of malnutrition and its associated factors including cognitive frailty among the elderly living in nursing home. This study was conducted in two institutionalized elderlies in Kuala Terengganu and Marang. Sociodemographic data; anthropometric measurement comprised of body mass index (BMI), mid upper arm circumference (MUAC), demi-span (DS), knee height (KH) and calf circumference (CC); 24-hour diet recall; Mini Mental State Examination (MMSE); handgrip strength (HGS) and Mini Nutritional Assessment- Short Form (MNA-SF) were collected. A total of 15 respondents were involved; 53.3% were female while 46.7% were males. The prevalence of cognitive frailty and risk of malnutrition were 6.7% and 26.7% respectively. This study showed significant association between risk of malnutrition and body weight (p=0.009), MUAC (p=0.002), KH (p=0.026), CC (p=0.016), BMI (p=0.018), protein intake (p=0.009), vitamin A intake (p=0.026), vitamin C intake (p=0.041) and HGS (p=0.037). In conclusion, the prevalence of cognitive frailty among the elderlies does not increase their risk to be malnourished. Female respondents have significant higher risk of being malnutrition than male respondents. Study related to risk of malnutrition and cognitive frailty should be conducted in larger scale involving all ethnics in Malaysia to determine the associated risk factors of risk of malnutrition among elderlies.

Keywords: Physical frailty, cognitive impairment, cognitive frailty, nutritional status, elderly

NO_16

Relationship Between Carbohydrate And Energy Intake With Obesity Among Adolescent In Kuala Terengganu

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Abstract

The prevalence of obesity among adolescents has been increased substantially over decades and is being commonly associated with poor dietary eating such as excessive consumption of carbohydrate and energy intake. Therefore, a cross-sectional study was carried out to investigate the association between carbohydrate and energy intake with obesity among 77 adolescents aged 13-16 years old with mean age of 14.5 ± 1.0 in Kuala Terengganu. Sociodemographic characteristics, anthropometric measurements (weight, height, BMI), carbohydrate and energy intake were assessed. BMI was categorized based on WHO BMI-for-age percentiles. Prevalence of respondents that are overweight and obese shown the same value which is.22.1% respectively. Mean CHO and energy intake were 222.2 g/day and 1299.6 kcal/day respectively. Significant differences were only found between fruits and carbonated soft drinks intakes between BMI. However, no significant association was found between sociodemographic characteristics and BMI. Simple linear regression showed that there is significant linear relationship between carbohydrate and energy intake with obesity among adolescents. As conclusion, increased in carbohydrate and energy intake associated with overweight and obesity among adolescent populations. Hence, promoting healthy eating should be incorporated in future obesity prevention programmes in adolescents.

Keywords: Adolescents, obesity, body mass index, mean carbohydrate intakes, mean energy intakes

NO_17

The Relationship Between Intake Fe and Family Support With Incidence of Anemia in Pregnant Women

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Abstract

Anemia in Pregnant Women is a health problem during pregnancy. Where the state of decreased hemoglobin levels and the number of red blood cells below normal values. Anemia cases can occur directly due to lack of iron intake, and indirectly due to family support. Based on data from the West Aceh Health Office, the number of anemia cases in 2017: 2219, 2018: 1675, until September 2019: 734. The research purpose was to explored the relationship between intake Fe and family support with the incidence of anemia in pregnant women. The method research was analitic survey with cross sectional design, the population is all pregnant women trimester II and III of 54 pregnant women. Taking in total sampling, data analysis was performed using Univariate analysis, Bivariate with Chi-Square test.The research results was obtained a relationship between intake factor (Fe) with the incidence of anemia in pregnant women where the value of P. value = 0.006 < α = 0.05. There is a relationship between Family Support factors and the incidence of anemia in pregnant women where the P-value = 0.001< α = 0.05. Expected mothers are expected to know the importance of intake Fe, extensive knowledge about the dangers of anemia during pregnancy and the importance of family support for pregnant women to avoid anemia.

Keywords : Intake Fe, Family Support, Anemia

NO_18

Nutritional Status and Body Image Perception of Adolescents in Special Region of Yogyakarta Province, Indonesia

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Abstract

Adolescence is a time of physical, psychological and cognitive development that can lead to nutritional and health problems. Stunting, underweight, obesity and anemia are still nutritional problems that need interventions for adolescents aged 13-18 years in Special Region of Yogyakarta Province. The combination of internal and environmental development factors causes distortion of body image and unhealthy eating behavior. This study aims to determine the nutritional status affects the perception of adolescent body image. The study design was analytic observational with cross sectional design. Subjects were 310 students from 5 SMA in Special Region of Yogyakarta Province. The data collected included respondent characteristics, adolescent nutritional status (measurement of body weight and height) and body image (body shape questionnaire). Most of the respondents were female (67%). The mean age of the respondents was 16.3 years. As many as 88% of respondents have a normal height based on age, 78% have a normal body mass index based on age, 71% have a normal body fat composition, 37% have a normal muscle composition. Adolescent nutritional status was closely related to body image and significant at p <0.05 (chi square, RR = 1.32). As many as 49% of adolescents have a negative body image. Adolescents with more or less nutritional status had a 1.32 times greater chance of having a negative body image perception than adolescents with normal nutritional status.

Keywords: Nutritional Status, Body Image, Perception

NO_19

Evaluation of Usability of Malaysia Diabetes Prevention Program (Mydipp) Mobile App – A Pilot Study

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Abstract

Individuals who are tested positive for Covid-19 and have a history of non-communicable diseases (NCDs) such as diabetes are at greater risk of serious health complications that could lead to mortality. About 80.7% of deaths due to Covid-19 involved those suffering from chronic illnesses such as diabetes. Malaysia is confronting a type 2 diabetes (T2DM) epidemic; around 3.6 million Malaysian have T2DM. Lifestyle modification intervention has shown to be effective in reducing or delaying the onset of T2DM among high-risk individuals. Malaysia Diabetes Prevention Programme (MyDiPP) app is a lifestyle intervention digital therapy with multiple approaches (weight loss, dietary modification, physical activity and quality of life). This study assessed the usability of MyDiPP mobile app among high risk individuals in Kuala Terengganu. A random sample of 10 users was selected in the usability evaluation of MyDiPP mobile app. Data collection methods included an online survey on the usability aspect of mobile apps in terms of usefulness, ease of use, satisfaction and ease of learning. The results showed that MyDiPP mobile app is useful, easy to use, satisfying and easy to learn from the high-risk adults' perspectives with slightly agree, moderately agree and strongly agree have the highest percentage. From the results, participants moderately agree (47.50±8.86%), slightly agree (37.27±11.91%) and moderately agree (42.86±7.56%) that the app is useful, easy to use and satisfying respectively. They also moderately agree (40±8.17%) as well as strongly agree (40±8.17%) that MyDiPP mobile app is easy to learn. From these results, it can be inferred that, from the perspective of the high-risk individuals, MyDiPP mobile app meets the usability aspects and can be used to help prevent the development of diabetes among at risk adults.

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Scope: Bridging the Gap in Biomedical Research

BE_1

Severe Haemolytic Disease of Fetus and Newborn due to Anti-c Alloimmunisation in a Multiparous Malay Woman

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Abstract

Severe haemolytic disease of foetus and newborn (HDFN) known to be associated with anti-D, anti-c and anti-K alloimmunisation. However, anti-c associated HDFN was infrequent, because the majority of infants were relatively often c-negative. This case report describes a severe HDFN due to anti-c alloimmunisation in a multiparous Rhesus D positive mother. The baby was delivered prematurely at 32 weeks of gestation and unable to survive due to hydrops foetalis. Failure to detect anti-c alloimmunisation at the early antenatal period and unknown previous RBC alloimmunisation status were the main reasons for poorly suspicion of HDFN, which lead to improper foetal management and end up with foetal loss. Thus, routine antenatal RBC antibody screening during early antenatal period is recommended for every pregnant woman with a history of HDFN or at risk for alloimmunisation for early detection and management of HDFN to prevent severe related morbidity or mortality.

Keywords: Hydrops fetalis, Anti-c antibody, Isoimmunisation, Pregnancy

BE_2

Low Hepcidin Level Enhances Iron Overload in β Thalassemia Patients

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Abstract

Iron overload in the most complication of β-thalassaemia patients with/without blood transfusion-dependence. Iron homeostasis is regulated by hepatic hormone (Hepcidin) that controls the dietary iron absorption and plasma iron concentration. Hepcidin deficiency contributes in iron overload of β-thalassaemia patients. This study aimed to investigate the relationship between Hepcidin concentration and serum iron status among β-thalassaemia patients. For this purpose, Hepcidin concentration was estimated in 53 patients with Hb E/β-thalassaemia minor, 53 patients with HbE/β-thalassaemia major and 53 healthy controls. Complete blood count and iron profile including serum iron, ferritin and total iron capacity were also measured. The results showed remarkable increased of serum Hepcidin and serum ferritin in HbE/β-thalassaemia major patients compared to that of controls. However, Hepcidin level was significantly decreased ($P<0.001$) in HbE/β-thalassaemia minor compared to that of controls. There was a significant decreased of haematological parameters in HbE/β-thalassaemia major and HbE/β-thalassaemia minor compared to that of controls. The results also showed that serum ferritin level was increased significantly ($P<0.001$) in HbE/β-thalassaemia major and HbE/β-thalassaemia minor compared to that of controls. Inconclusion, serum Hepcidin was markedly decreased in HbE/β-thalassaemia minor patients that was associated with a significant increase in serum ferritin. The finding of the present study supported the hypothesis that Hepcidin is reduced in β-thalassaemia patients resulting in iron overload due to high iron absorption. Therefore, determination of Hepcidin concentration is a useful indicator for high risk of iron toxicity in patients with β-thalassaemia and could be a therapeutic target in management of iron burden in such patients.

Keywords: iron overload, β-thalassaemia, hepcidin

BE_3

Thymoquinone enhances the apoptosis and induces cell cycle arrest in myeloid leukemia

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Abstract

Thymoquinone; (TQ) is one of the main active ingredients of *Nigella sativa* that showed potential anti-cancer properties in several cancers by inhibiting cell proliferation and enhance apoptosis. In current study we aimed to investigate the effect of TQ against acute myeloid leukemia HL60 cell line. For this purpose, MTT and trypan blue exclusion tests were conducted to determine the 50% inhibitory concentration (IC_{50}) and cell proliferation effects of TQ on HL60 cells, respectively. FITC Annexin V apoptosis detection kit was performed to study the effect of TQ on apoptosis and Guava® cell cycle reagent was used to examine the cell cycle phases. All analyses were performed before and after treatment with TQ. Results revealed that the IC_{50} of TQ on HL60 cells is 2 µM. The percentage of apoptotic cells was markedly increased after incubation of HL60 cells with TQ and showed dose- and time-dependent manner. The cell cycle analysis indicated that TQ inhibits HL60 cells' proliferation and significantly increased G1 and S phase arrest *($p < 0.001$)*.

Keywords: Thymoquinone, *Nigella sativa,* acute myeloid leukemia, apoptosis

BE_4

Evaluation and Verification Study of Normal Reference Ranges for Routine Coagulation Parameters by Dual Method Platform System (Dt100 Tcoag) and Correlation Study using Normal Plasma

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Abstract

DT 100 TCoag analyzer (TCoag Ltd, Ireland) is a fully automated coagulation system for PT, aPTT, TT, Factor Assays, Fibrinogen, D-Dimer including other specialized assays such as thrombophilia testing. It offers a dual platform, using optical-based and mechanical based methods on one analyzer system. This provides an option for users to perform and determine the endpoint of the coagulation testing by either one of the detection methods. In addition the system also applies chromogenic and immunoturbidimetric based assays for hemostatic investigation. To evaluate (and verify) the new manufacturer normal reference ranges for PT, aPTT, D- dimer and fibrinogen using DT100 Tcoag analyzer and to correlate routine coagulation parameters (PT,APTT, fibrinogen and D-dimer) between DT100 Tcoag (using mechanical system method) and STA-R Evo (STAGO, France), a single mechanical platform method. Thirty-five fresh blood samples were collected from healthy male and female based on recommended guideline for selection of subjects for normal pool plasma collection. The blood samples were centrifuged to obtain platelet-poor plasma. All samples were tested within 4 hours of collection and tested using both Tcoag DT100 and STA-R Evo. The data were analyzed by calculating the mean (m), standard deviation (SD), Pearson correlation study and correlation bias plot analysis. There are mild differences in the reference ranges study of the tested parameters between the new manufacturer ranges and the results obtained from this study. It is recommended that normal reference ranges according to the Malaysian population is established using adequate samples. The results can be used for 'transference' of reference interval which is then verified at the individual laboratory level. The correlation study between STA-R Evo and DT 100 Tcoag using mechanical based method showed a generally high correlation using similar test principle. A dual method platform system is a potential option for future practice in a coagulation laboratory.

Keywords: Dual Method Platform System, DT100 TCoag, coagulation

BE_5

Stimulation Effect of Asiatic Acid and Medacassoside derived from *Centella asiatica* (Linn.) (Pegaga) on Phagocytosis Activities of Murine Macrophages Cell Line (J774A.1)

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Abstract

Macrophages play a vital role in innate immune responses mainly by initiating phagocytosis towards microorganism that encounter a body. The phagocytosis plays an important role in contributing to the effectiveness of macrophage in the inflammatory responses towards pathogens that able to cause infectious disease. Asiatic acid (AA) and madecassoside (MA) are two major pentacyclic triterpene compounds derived from *Centella asiatica* (Linn.) or locally known as pegaga. Both compounds are believed involve in many related pharmacological activities of this medicinal plant and also have a potential to modulate immune responses. Thus, a normal model creating unstimulated macrophages was used to investigate the effects of mentioned compounds on this important immune physiologic process. Therefore, the ability of untreated, lipopolysaccharide-stimulated, AA-treated, MA-treated and AA+MA-treated macrophages after 24 hours of treatment period and then co-cultured with killed *Candida albicans* for one hour to phagocytose this microorganism was assessed. The analysis was done on the Giemsa stained slide for phagocytic uptake of killed *C. albicans* by macrophages. The results present that the combination treatment (AA+MA) significantly enhanced the phagocytosis activities of macrophages by increasing the uptake of intracellular *C. albicans* and phagocytic index when compared to the untreated and single compound-treated macrophages, respectively. As a conclusion, the combination treatment is able to stimulate immune response of macrophages and provide an initial knowledge for the development of a natural product-based preventive agent against infectious diseases. Consequently, this new agent hopefully might be used in future to sustain the community health especially in controlling the pandemic outbreak.

Keywords: Asiatic acid, madecassoside, *Centella asiatica*, pegaga, phagocytosis. macrophage, J774A.1

BE_6

Relation between Cat Allergen Skin Prick Test Scores and Allergy Rhinitis Classification in Children

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Abstract

Allergic rhinitis is an inflammatory disease of the respiratory system that is caused by an allergic reaction that has been previously exposed to allergens, one of which is aeroallergens. Cat allergens are indoor aeroallergens which are known to trigger allergic rhinitis in children. The skin prick test is done because it is cheap and the results can be seen immediately. However, the correlation between cat allergen skin prick test scores and the classification of allergic rhinitis in children is not known. The study used was cross-sectional in 92 allergic rhinitis patients. The Skin Prick Test is performed to determine the patient's sensitization to cat allergies. Results were analyzed using the Chi-Square test for differences in sensitization. Meanwhile, to analyze confounding factors using multivariate regression analysis. The results showed that the high score of cat allergen skin prick test in intermittent allergic rhinitis (p = 0.18) was 1 (2%) and in persistent rhinitis was 4 (12%). The low score of skin prick test in intermittent allergic rhinitis (p = 0.04) was 57 (98%) and persistent 30 (87%). From this study, there is a relationship between low score skin prick test scores with the classification of allergic rhinitis in children. This research is expected to help doctors and health practitioners determine the treatment of allergic rhinitis easily.

Keywords: sensitization, cat allergen, classification of pediatric rhinitis

BE_8

Comparison of Fluorescent Spot Test against Quantitative Enzyme Assay for Detection of Glucose-6-Phosphate Dehydrogenase Deficiency

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Abstract

Glucose-6-phosphate-dehydrogenase (G6PD) deficiency is the commonest enzymopathy globally. In Malaysia, the neonatal screening program was introduced in 1980 and uses Fluorescence Spot Test (FST), a semiquantitative method. G6PD deficiency can manifest as oxidative haemolysis and neonatal jaundice. This is a cross sectional study comparing FST and quantitative assay (BioSensor1 careSTART^{TM}). FST and BioSensor1, including Haemoglobin normalisation, were performed on 287 cord blood samples. Parameters including gestational age and gender were collected from patient's records. 52.6% of our samples were female and the remaining are male. The majority of our patients were Malay (97.2%) whilst the remaining are of Chinese, Arab, Thai and Rohingya ancestry. The mean cord blood G6PD level was 7.1 U/gHb $\pm$ 1.3 SD and the mean cord blood Hb level was 16.0 g/dL $\pm$ 2.7 SD. The prevalence of G6PD deficiency using FST was 4.2% but increased to 13.9% using BioSensor1. FST detects 2% of G6PD deficiency in females, in comparison with males (6.6%) however Biosensor1 detects up to 15.8% of G6PD deficiency in females. The prevalence of G6PD deficiency in Malaysia is 3.1%. Studies have shown that the prevalence can differ substantially if using quantitative assay then with FST. FST miss a significant proportion of females with intermediate levels of G6PD. Quantitative enzyme assays can improve the detection rate of G6PD deficiency leading to early detection of infants who can develop severe hyperbilirubinaemia.

Keywords: Fluorescent Spot Test, Glucose-6-phosphate-dehydrogenase (G6PD) deficiency, Quantitative enzyme assays

BE_9

Effects of Different Doses of Complete Freund's Adjuvant to Induce Polyarthritis in Rat Mimicking Rheumatoid Arthritis

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Abstract

Complete Freund's adjuvant (CFA) is used to induce arthritis mimicking rheumatoid arthritis (RA) in rat. However, effects of CFA at different doses was not reported. The aim of the study was to compare the effects of CFA at different doses in rat. Twenty-four Sprague-Dawley male rats were randomly allocated into four groups (n=6): Control (C), CFA-induced polyarthritic groups at doses of 5.0mg/mL, 7.5mg/mL and 10.0mg/mL. The rats were injected with specified doses at right hindpaw and allowed to develop into polyarthritic state for 20 days. Pain tests including von-Frey and hot-plate tests and mobility scoring were conducted on day-0, 7, 15 and 20. Paw diameter and circumference were measured on day-0, 3, 6, 9, 15 and 20. Body weight was recorded every 3 days. The data was analysed by one-way ANOVA with post-hoc Scheffe's test or one-way repeated measures ANOVA with post-hoc Bonferroni test. Significance level was taken at $p<0.05$. All rats injected with CFA at different doses showed significant reduction in body weight, mobility, thermal hyperalgesia and tactile allodynia compared to control on Day-3, 7, 15 and 20 ($p<0.05$). These groups also demonstrated significant increase in paw oedema compared to control group on day-3 to -20 ($p<0.05$). However, the rats induced with CFA at 10mg/mL showed the most constant and reliable results in all parameters. The 10mg/mL of CFA could be the most convincing and reliable dosage to be used for polyarthritic induction mimicking RA in the rat model.

Keywords: Complete Freund's adjuvant, tactile allodynia, thermal hyperalgesia, paw oedema, polyarthritis

BE_10

Perception on the role of dentist in smoking cessation among army personnel in 8th Brigade Infantry, Kelantan

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Abstract

Prevalence of smokers among Malaysian army personnel is high. Smoking is one of the risk factors for chronic diseases. Smoking cessation program can help to ensure the health readiness of army personnel which contributes to their military readiness. To compare perceptions on the role of dentist in smoking cessation activity between non-smokers and ever-smokers army personnel. A cross sectional study was carried out among 233 randomly selected fit infantry army personnel in the 8th Brigade Infantry, Kelantan. A validated Bahasa Malaysia questionnaire was used to measure army personnel's perceptions on the role of dentist in smoking cessation activity. Descriptive statistics and Pearson Chi-square test were done using SPSS ver22 with statistical significant at $p<0.05$. There were 42 (18.0%) non-smokers and 191 (82.0%) ever-smokers army personnel involved in the study. All (100%) were male and majority (92.7%) were Malays with a mean age of 25.8 (SD 5.06) years. Majority of non-smokers (81.0%) and ever-smokers (83.8%) expected their dentist to discuss about smoking with patients. Significantly more ever-smokers (30.4%) strongly agree/ agree that dentist should ask about smoking on every visit compared to non-smokers (19.6%); p-value=0.024. Both non-smokers and ever-smokers have positive perceptions on the role of dentist in smoking cessation activity. Significantly more ever-smokers strongly agree/ agree that dentist should ask about smoking on every visit at dental clinic (p-value=0.024). This provides an insight towards the needs of smoking cessation activity and strengthening the role of dentist in smoking cessation program among the army personnel.

Keywords: dentist, smoking cessation program, army personnel

BE_11

Knowledge, Attitude and Practices on Maternal Hypertensive Disorder Among Mothers in Kuantan, Pahang

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Abstract

Maternal hypertensive disorder (MHD) complicates 10% of pregnancy worldwide. In Malaysia, the percentage of maternal deaths due to MHD fluctuated from 2012 to 2017 and did not show any decline yet. Hence, this study was conducted to develop and validate the questionnaires as a research tool, to measure the level of knowledge, attitude and practices (KAP) on MHD, to evaluate the associated factors with KAP on MHD, and to determine any correlation between KAP on MHD. A cross-sectional study was conducted in Kuantan, Pahang between January 2020 and March 2020. A convenience sampling was done and self-administered questionnaires were distributed among 100 respondents that fulfil the criteria. The result showed that the questionnaire was done through literature review, expert validation and pilot study validation. Most of the respondents had a moderate knowledge (n=63; 63.0%), moderate attitude (n=66; 66.0%) and high practices (n=61; 61.0%) on MHD. There was no significant association detected between socio-demographic factors and KAP of the respondents. A significant correlation is identified between knowledge and attitude (r=0.613, p<0.001) and knowledge and practice (r =0.326, p=0.001) but no significant association between attitude and practice (r=0.183, p=0.068). In conclusion, this study has revealed that majority of the respondents possess moderate knowledge and attitude, and excellent practice on MHD. Hence, it is recommended a that future studies related to KAP on maternal mortality and morbidity across setting should be done so that the early prevention steps can be taken to accommodate the possible problems that may arise in the future.

Keywords: Maternal Hypertensive Disorder, knowledge, attitude and practices (KAP), Malaysia

BE_12

Prevalence of *erm* and *msr* genes encoding macrolide-lincosamide-streptogramin B (MLS_B) resistance among clinical isolates of *Staphylococcus aureus* in Terengganu

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Abstract

Macrolide-lincosamide-streptogramin B (MLS_B) resistance phenotypes which can be either inducible ($iMLS_B$), constitutive ($cMLS_B$) or macrolide-streptogramin (MS) are commonly observed among *Staphylococcus aureus*. Generally, MLS_B resistance can be conferred by the *erm* gene which mediates ribosome methylation, and/or the *msr* gene encoding macrolide efflux pumps. Resistance to these antibiotics can lead to therapeutic failure, resulting in significant morbidity and mortality in patients with *S. aureus* infections. The present study aimed to investigate the prevalence of five MLS_B resistance genes, i.e., *ermA*, *ermB*, *ermC*, *msrA* and *msrB* among 92 MLS_B-resistant *S. aureus* isolates from Hospital Sultanah Nur Zahirah (HSNZ), Terengganu, by polymerase chain reaction (PCR) detection of the genes. The *S. aureus* isolates were obtained from HSNZ patients from July 2016 – June 2017. Of these isolates, 54 (58.7%) were $iMLS_B$, 14 (15.2%) were $cMLS_B$ and 24 (26.1%) were of the MS phenotype. The *ermC* gene was most prevalent, being detected in 80 (87.0%) isolates, followed by the *msrA* gene in 10 (10.9%) isolates. The *emrB and msrB* genes were each detected in five (5.4%) isolates whereas *ermA* was the least prevalent, being present in only two (2.2%) isolates. Majority of the *S. aureus* isolates carried only one MLS_B gene (*n* = 71, 77.2%). Fourteen (15.2%) isolates had a two-gene combination of which the most common combination pattern was *ermC*/*msrA* (*n* = 6), followed by *ermB*/*ermC* (*n* = 3), *msrA*/*msrB* (*n* = 2), while one isolate each had *ermA*/*ermC*, *ermC*/*msrB* and *ermB*/*msrA* combination. Only one isolate had a three-gene combination, namely *ermC*/*msrA*/*msrB*. Six (6.5%) isolates were found to be negative for all of the MLS_B genes. Some discrepancies between the MLS_B phenotype and genotype in the *S. aureus* isolates might indicate the presence of other gene(s) encoding for the MLS_B resistance mechanism.

Keywords: *S. aureus*, MLS_B, *ermA, ermB, ermC, msrA, msrB*

BE_13

Etlingera Elatior Flower Aqueous Extract Improved Liver Biochemical and Histopathological Changes in Type 2 Diabetes Rat Models.

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Abstract

Diabetes mellitus (DM) affects a large number of individuals around the world. The latest NHMS 2019 reported that 3.9 million adults in Malaysia had diabetes in 2019, with 49 per cent remaining undiagnosed. DM is known to affect multiple organs in the body, including the liver, which play a significant role in glucose, protein and lipid metabolism. *Etlingera elatior* flower or formally known as Bunga kantan is widely cultivated in Southeast Asia and traditionally used for lowering blood sugar in a diabetic patient. The aim of this study is to elucidate the biochemical and histological changes in the liver of diabetic animals treated with *E.elatior* aqueous extract (EEAE). In this study, type-2 DM rat model has been developed by a combination of high-fat diet feeding and streptozotocin/STZ (35 mg/kg). Forty-nine male Sprague-Dawley rats were equally divided into seven groups. The changes in biochemical parameters and liver histology were analysed after six weeks of oral gavage treatments of the extracts (500, 1000 & 2000 mg/kg) in comparison with metformin (250 mg/kg; oral hypoglycaemic agent) and untreated DM rat. There was a substantial improvement of liver function in diabetic rats treated with EEAE extract and metformin as compared to untreated DM. In addition, the lipid profile also improved with EEAE, comparable to metformin. Consistently, histological analysis of liver tissue indicates the restoration of hepatocyte architecture and decreases fatty changes attribute to diabetes. Findings shown that EEAE normalised biochemical alterations and reduced fatty liver disease caused by type-2 DM.

***Keywords*:** Diabetes mellitus, *Etlingera elatior*, biochemical, liver histology.

BE_14

Knowledge, Attitude and Practice on Maternal Sepsis among Mothers in Kuantan, Pahang

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Abstract

Maternal sepsis is one of the main contributors to maternal mortality in worldwide. Malaysia have a least number of cases associated with maternal sepsis in 2015. However, the quantity of cases was expanding on 2017 as stated by the Family Health Development Division Ministry of Health Malaysia. Hence, development and validation of questionnaires as research tool was conducted to evaluate the level KAP, the factors associated with the score of KAP and the correlation between the elements of KAP among mothers in Kuantan, Pahang. A cross sectional study design and convenience sampling were applied to 100 respondents among mothers based on specific criteria. From the findings, the level of knowledge on maternal sepsis among mother in Kuantan was good (52%), whereas the level of attitude was moderate (85%). However, the finding shows that the level of practice among mothers in Kuantan was good (76%). The maternal age with *p*-value 0.007 showed significant association with knowledge on maternal sepsis. There was a significant correlation between knowledge and attitude (r = 0.433, p = less than 0.001) and knowledge with practice (r = 0.236, p = 0.018), while attitude and practice (r = 0.194, p = 0.053) showed no significant correlation. The findings found that the mothers in Kuantan, Pahang had good level of knowledge, moderate attitude towards maternal sepsis and excellent practice in preventing maternal sepsis. It tends to be applied as a benchmark to improve the knowledge and awareness towards maternal sepsis to reduce the maternal mortality rate in Malaysia.

Keywords: Maternal Sepsis, Pregnancy, Pregnancy complication

BE_15

Prevalence and Antimicrobial Susceptibilities of *Acinetobacter* spp. in a Tertiary Hospital in Terengganu: A Four-Years Retrospective Study

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Abstract

Acinetobacter species, a Gram-negative pathogen of increasing prominence, is frequently multidrug-resistant (MDR; display resistance to three or more antimicrobial classes) and can thus pose therapeutic challenges, especially in critical care units. This study presents data on species distribution and antimicrobial susceptibility profiles of *Acinetobacter* isolates obtained from the main tertiary hospital in Terengganu, Malaysia, over a period of four years. From 2015 to 2018, 283 *Acinetobacter* spp. were collected from the Microbiology Laboratory of the Department of Pathology, Hospital Sultanah Nur Zahirah (HSNZ). All the isolates were identified to the genospecies level by the amplification and sequencing of the RNA polymerase β gene, *rpoB*. Susceptibilities against a panel of 20 antimicrobials encompassing eight antimicrobial classes were determined for all isolates by using the disc diffusion method. The most prevalent *Acinetobacter* spp. was *A. baumannii* which comprised 86.2% of all *Acinetobacter* specimens obtained from the hospital, followed by *A. nosocomialis* (9.9%), *A. pittii* (2.5%), *A. soli* (1.0%), and *A. oleivorans* (0.4%). Remarkably high MDR rates were recorded by *A. baumannii* (98.5%) whereas the non-*baumannii* acinetobacters were generally non-MDR. *A. nosocomialis*, for example, only showed a 2.5% MDR rate. Interestingly, higher rates of MDR were observed in isolates obtained from non-ICU wards (68.0%) compared to ICU wards (32.0%). Overall, the mortality rate is moderate (65.4%) and is significant among *A. baumannii*-infected patients (p<0.001), supported by their MDR association (p < 0.001). Antimicrobial susceptibility profiles varied by species, but resistance rates were high in *A. baumannii* isolates which ranged from 76% - 84.0% for most of the antimicrobials tested including carbapenems, cephalosporins, aminoglycosides, tetracyclines, and fluoroquinolones. However, all isolates (100%) were susceptible to colistin and polymyxin B and had a low resistance rate towards minocycline (2.0%). This study highlighted the major role of *A. baumannii*, particularly those that are MDR, as the causal agent of *Acinetobacter* infections in the main tertiary hospital in Terengganu over a four-year period. Nevertheless, proper vigilance must be taken to ensure that non-*baumannii* acinetobacters, especially those that are MDR, do not spread in our healthcare settings.

Keywords: *Acinetobacter baumannii*, *non-baumannii* acinetobacters, multidrug-resistant, *rpoB* gene

BE_16

Haematological Parameters Analysis of Hb Adana (Cd59 GGC>GAC [Gly>Asp]) and deletional α-thalassaemia among screened Form 4 students in Kelantan

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Abstract

Hb Adana is a non-deletional, unstable α-variant haemoglobin. This mutation compromises the stability of haemoglobin. Compounded with an alpha globin gene deletion resulting in diverse clinical manifestation to the extreme of transfusion dependency or hydrops foetalis. This study aimed to describe hematological parameters and haemoglobin analysis of Hb Adana and deletional alpha thalassaemia (1 and 2 α gene) in screened Form 4 students in Kelantan. Retrospective review of DNA analysis from 1070 cases of Form 4 students (age 15-17 years old) screened for α-thalassaemia was done for the period of June 2017 to June 2020 in Hospital Raja Perempuan Zainab II. Samples were analysed in stage. Full blood count analysed using Sysmex XE 3000 with MCH <27 pg selected for haemoglobin analysis CE using Capillary 2 Flex Piercing (Sebia). Normal CE result with MCH <25 pg was proceeded with DNA Analysis. The proportion and haematological parameters of molecularly diagnosed Hb Adana and α- deletional thalassaemia were examined. Of 1070 cases, noted 682(63.3%) female predominance over male 396 (36.7%). Identified 31(2.9%) Hb Adana, 2(0.2%) Hb Adana/ $\alpha^{-3.7}$, 702 (65.6%)1-α gene deletion and 335(31.3%) 2-α gene deletions. Statistical analysis showed significant difference in RBC, MCV and MCH between groups (Anova, post-Hoc [Dunnett C] <0.05). There is higher proportion of Hb Adana among screened Form 4 students in Kelantan with significant haematological parameters. With evidence of growing proportion of this relatively uncommon Hb Adana, there is a need for quick and accurate screening for this mutation.

Keywords: Hb Adana, Codon 59 mutation, Cd59 GGC>GAC [Gly>Asp]

BE_17

Quorum Sensing activity of *Aggregatibacter actinomycetemcomitans* in periodontal disease: A review

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Abstract

Aggregatibacter actinomycetemcomitans infection is a significant pathogen in periodontal disease, which contributes to chronic inflammatory conditions of the periodontal area. This pathogen was shown to contribute to the formation of a tenacious biofilm in the oral cavity and results in persistent induction of inflammatory response leads to progressive periodontitis. Other than the immune-modulatory capabilities of this pathogen, quorum sensing (QS) activity is believed to be part of the virulence activities, which leads to a progressive inflammatory response by the host. QS modulates the expression of genes involved in the processes related to survival and biofilm formation activities by the answer to the fluctuation of the bacterial population localized. Understanding the QS activity of a pathogen and its impact on disease might be useful as an alternative approach to counteract infection. Therefore, this review paper is focusing on the evaluation of the QS activities of *A. actinomycetemcomitans* and how this activity be partly responsible for the progression of periodontal disease. Based on the previous findings and reports, we found that there are possibilities the QS activity interrupted by enzymes or molecules that blocking the QS signals produced by other species of bacteria. However, due to limited studies that have done on *A. actinomycetemcomitans*, the mechanism is not conclusive. However, this might initiate an essential option as an alternative treatment against periodontal pathogen infection and oral health care.

Keywords: *Aggregatibacter actinomycetemcomitans*, biofilm, periodontal disease, quorum sensing

BE_18

Combination Effect of Methyl Gallate and Cisplatin on Proliferation and Antioxidant Enzymes Level in Cervical Cancer (HeLa) Cells

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Abstract

Cisplatin-based chemotherapy is widely used to treat numerous types of cancer. In cancer cells, elevated oxidative stress and delicate redox balance have been observed due to oncogene activation, high metabolic activity and mitochondrial malfunction. ROS-inducing drugs increased cisplatin-induced ovarian cancer cell injury in vitro and in vivo. Methyl gallate has attracted much interest due to its anticancer activity. This study was conducted to determine the antiproliferative activity of methyl gallate and its combination with cisplatin towards HeLa cells. The intracellular ROS and antioxidant enzymes activity in HeLa-treated cells were also evaluated. Antiproliferative activity of methyl gallate and cisplatin on HeLa cells was determined using MTT assay. The combination effect of methyl gallate and cisplatin was determined by CompuSyn software. The intracellular ROS and activity of antioxidant enzymes were measured using spectrophotometric method. The results showed that the IC_{50} of methyl gallate and cisplatin on HeLa cells were 16.55µg/mL and 8.04µg/mL. Methyl gallate (IC_{50}=16.55µg/mL) combined with cisplatin at concentration of 0.51-4.02µg/mL has shown synergistic effects. The intracellular ROS in HeLa cells treated with cisplatin (122.7 ± 9.45 %), methyl gallate (117.9 ± 3.55%) and the combination (134.6 ± 6.7%) were significantly increased compared to control group. The single and combination treatment also decreased the activity of SOD and catalase. Therefore, our results suggest that combination treatment exhibited synergistic effect towards HeLa cells by increasing ROS and reducing SOD and catalase levels. These findings will provide information for further investigation on this combination as a potential chemotherapeutic agent for cervical cancer.

Keywords: antiproliferative activity, methyl gallate, cisplatin, synergistic effect, ROS

BE_19

Comparison of HbA1c level measured by HPLC and Capillary electrophoresis among patient with high urea

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Abstract

Utilisation of HbA1c in diagnosis and monitoring of diabetes mellitus is accepted and validated worldwide. Standardisation between various methods available is no longer an issue. However, knowledge of HbA1c interference by various haemoglobin (Hb) fractions presence in the patient's sample must be taken into account during HbA1c analysis and interpretation. Carbamylated Hb (cHb) is one of Hb fractions, formed when Hb condensed at the N-terminal valine by cyanate derived from spontaneous decomposition of urea which usually raised in patients with renal impairment. This study aimed to compare the level of HbA1c in patient with high urea measured using High Performance Liquid Chromatography (HPLC) and Capillary Electrophoresis (CE). After analysis using the laboratory's routine method, or HPLC, the patient's samples with concurrent urea level of >25 mmol/L were re-analysed within 2 hours using the comparative method or CE. A cut off cHb of 2% on HPLC considered as no interference. The mean level of urea was 31.37±5.09 mmol/L (range 25.2-43.1mmol/L). Out of 68 samples, only 24 cHb were detected by HPLC but only less than 2% and none cHb detected on CE. Correlation between HPLC and CE showed no significant different in HbA1c measurement (r= p>0.05). Therefore, we propose that both HPLC and CE can be used to determine HbA1c level in patient with high urea.

Keywords: High Urea, Carbamylated haemoglobin, HbA1c, HPLC, CE

BE_20

Effect of Type 1 Diabetes on the Reproductive Organ and Sperm Count in Male Diabetic Rats

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Abstract

Type 1 diabetes is an autoimmune disorder characterized by a lack of insulin production which is due to the reduction of pancreatic beta cells. Diabetes may affect nearly all the tissues and organs including the reproductive organs. Thus, the present study was aimed to investigate the effect of Type 1 diabetes on the reproductive organs and also to examine the sperm count in alloxan-diabetes induced rats. Twelve Sprague Dawley male adult rats were splits into two groups; (i) non-diabetic (n=6) and (ii) diabetic treated (n=6). Diabetes was induced in the diabetic group by a single dose of 150mg/kg of alloxan intraperitoneally. Non-diabetic and diabetic rats were tested for blood glucose levels on days 1, 7, 14, 21, and 28. After four weeks, the rats were sacrificed and the weight of the testis and epididymis were measured. For sperm count, epididymis sperms were used. The blood glucose level of animals in the diabetic group was statistically insignificant compared to non-diabetic rats ($P > 0.05$). Moreover, there was no significant difference in testis weight between diabetic and non-diabetic rats ($P > 0.05$). Epididymis weight and sperm count were reduced in alloxan-induced diabetic rats compared to non-diabetic rats, but this reduction was not significant ($P > 0.05$). In conclusion, alloxan monohydrate caused mild and inconsistent hyperglycemia in experimental rats which is inadequate to affect the male reproductive system. Thus, the result of testis weight, epididymis weight, and sperm count in the diabetic group is statistically insignificant compared to non-diabetic rats.

Keywords: Alloxan, male, reproductive, diabetes, rat

BE_21

Optimization of the Expression of Recombinant *Plasmodium knowlesi* Apical Membrane Antigen 1 (*Pk*AMA1) using *Pichia pastoris* System

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Abstract

Plasmodium knowlesi is the fifth human malaria parasite widespread in the forested area of Southeast Asia, especially Malaysia and the infection is potentially fatal. *Plasmodium* species are obligate intracellular parasites and apical membrane antigen 1 (AMA1) is one of the most prominent merozoite surface proteins and pivotal antimalarial targets, which plays a crucial role in parasites-host cells invasion. The production of the soluble and functional active recombinant protein is essential for downstream immunogenic and functional assays. Hence, the present study aims to optimize the conditions for recombinant expression of an ectodomain of *P. knowlesi* apical membrane antigen 1 (r*Pk*AMA1) protein using the *Pichia pastoris* system. Codon-optimized plasmid designated as *Pk*AMA1-pPICZαA was constructed and then cloned into *Escherichia coli* TOP10F' as the amplification host followed by *Pichia pastoris* KM71H as the expression host. Generally, two expression parameters were optimized: (i) induction time point based on four optical density (OD_{600} of 3, 4, 5 and 6) and (ii) methanol-induction concentration (0.5%, 1%, 2%, and 3%). Methanol induction was maintained every 24 hours up to 144 hours. In each time point, one ml of the culture was harvested, the supernatant was acetone precipitated and then visualized using 12% SDS-PAGE followed by Western blot validation. The r*Pk*AMA1 expression conditions were successfully optimized. A soluble form of r*Pk*AMA1 protein with approximately 55 kDa was secreted into the media. KM71H strain expressed a higher level of r*Pk*AMA1 and low endogenous proteins at OD_{600} 4 and 2% (v/v) methanol induction. Large-scale expression of r*Pk*AMA1 will be carried out after small-scale optimization and the purified protein will be used for the downstream assay.

Keywords: *Pk*AMA1, *Pichia pastoris*, methanol induction, protein expression, expression optimization.

BE_22

The spectrum of lymphoma cases diagnosed in Hospital USM using the WHO Classification

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Abstract

Lymphoma is the 4th common cancer reported by the Malaysian National Cancer Registry 2007-2011. The classifications of lymphoma has evolved since 1900s, and currently, the WHO classification tumours of Haematopoeitic and Lymphoid Tissues has been widely used since 2001. It too has evolved over the years, and many original classifications have been refined with new information on the biology of the disease. This is a retrospective analysis of the diagnostic data obtained from the Laboratory Information System database of the Department of Pathology, Universiti Sains Malaysia Health Campus. Using the keyword lymphoma, all of information containing this word was extracted out. Duplicate data was removed. Descriptive data then was analysed using SPSS 26. We found 339 cases reported with word 'lymphoma' in the diagnosis. After excluding duplication, there are 257 cases. There was 112 female and 145 male. 237 Malay, 15 Chinese, 1 Indian and 4 other races. A total of 176 cases are B-Non Hodgkin Lymphoma (NHL), 30 cases of T-NHL, 3 cases of NK/T cell, 42 cases of Hodgkin lymphoma, 1 Myeloid Neoplasm and 5 cases were reported as NHL only. The most common type is DLBCL 101 (39.3%) followed by High Grade B Lymphoma 15 (5.8%) for the B cell NHL. For T cell NHL, anaplastic large cell lymphoma 11 (4.3%) and T-acute lymphoblastic leukaemia 10 (3.9%). Classical Hodgkin Lymphoma, Nodular sclerosing type is 19 (7.4%) cases. Similar analysis of data from other centres should be done in the future to understand about the disease variants.

Keywords: WHO Classification, Non Hodgkin Lymphoma, Hodgkin Lymphoma

BE_23

A Qualitative Meta-Analysis of Cytochrome P450 (CYP51) between 1980-2018: Authors and Geographical Areas

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Abstract

Cytochrome P450 51 enzyme, sterol demethylase, is an intriguing subject for Cytochrome P450 structure and function studies as it is an important non-human drug target. CYP51 targeted drugs proves useful in treatment of various fungal infections such as candidiasis, aspergillosis and even dandruff (scalp) problem. Retrospectively, CYP51 studies are ambiguous ranging from prokaryotes and eukaryotes. The gap exists for a priori thematic categorisation via meta-analysis of existing published research. We aimed to study CYP51 research publications focusing on authors, geographical areas and kingdoms of existing literature. In this study, purposive sampling method was used to collect the data. The data collection was done by using specialised scientific database such as PubMed and Science Direct. Data source triangulation method was employed involving different data search to gain multiple validation of results. It was found only 504 published articles have met the inclusion criteria. Overall, our study shows that a total of 2454 authors were involved in the study of CYP51 and most of them are located in the North America areas focusing on the study in Fungi. Our meta-analysis outlined different data searching options for specific organisms which could direct us further into studies of wider kingdoms regions and organisms.

Keywords: Cytochrome P450, CYP51, sterol demethylase, antifungal, priori thematic analysis, meta-analysis

BE_24

Zebrafish Parkinson's Model: The Effects Of Tocotrienol Rich Fraction Towards Rotenone Induced Zebrafish

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Abstract

Parkinson's disease is a degenerative disease that affect the dopamine system in the brain which is responsible for the motor control of the body. Presently, drugs that is commercially available have unwanted side effects. Tocotrienol rich fraction (TRF) is an extraction from palm oil and is known to have many positive effects, nonetheless, there is insufficient details regarding the effects toward this disease. Zebrafish is a reliable model to study neurological disease with the induction of rotenone. The purpose of this study is to analyse the effects of TRF towards rotenone induced zebrafish**.** Adult zebrafish (n=60) were separated into three groups. Group 1: Normal group (n=10), Group 2: Negative group (n=10), Group 3: Experimental group (n=40). Zebrafish (n=50) were exposed to rotenone (5ug/L) for 28 days and later separate into four different groups with different concentrations of TRF (0.15, 0.3, 1.5, 3 mL). Adult zebrafish underwent treatment for three weeks, analysed through behaviour study and toxicity study (Lc_{50}). Lc_{50} was observed in 2.7 mL of TRF. Adult zebrafish display slow swimming pattern after inducing with rotenone, but showed significant increased after the treatment suggest that TRF notably changed the behaviour of rotenone induced zebrafish.

Keywords**:** Parkinson's disease, Rotenone, Tocotrienol rich fraction, *Danio rerio*

BE_25

Biochemistry Laboratory in Tertiary Teaching Hospital: Are We Ready To Face Covid-19 Outbreak?

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Abstract

COVID-19 is a new emerging disease originated from China. It has become an international public health concern and requires urgent response. All laboratories play a vital role in the COVID-19 testing response. Biosafety guidelines specifically concentrating on certain clinical laboratories were instilled however certain laboratories were left to organize and strategize the clinical samples. Even though biochemistry laboratories made up to 70% of the clinical samples, handling samples from suspected COVID-19 posed a challenge to the laboratory especially looking and balancing the needs of the clinicians and safety of the laboratory staff. Our biochemistry laboratory outlines some of the issues and challenges encountered. We have divided the issues based on preanalytical, analytical and postanalytical issues. Strategies and innovations were thought of to overcome this challenge with the hope of minimizing the exposure without compromising the quality of the results.

Keywords: COVID-19, biochemistry laboratory

BE_26

Antihyperglycemic and androgenic properties of *Moringa oleifera* leaves aqueous extract attenuate sexual dysfunction in Diabetes-Induced male rats.

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Abstract

This study is to evaluate the antihyperglycemic properties of *Moringa oleifera* (MO) leaves aqueous extract and its effect on diabetes-induced male rats in attenuating sexual dysfunction. A total of 40 mature male rats were divided into four main groups which were normal control group that received 1 mL of distilled water, negative control group which didn't receive any treatment, positive control group that received 500 mg/kg body weight of metformin, and MO treated group that received 400 mg/kg body weight of Moringa oleifera leaves aqueous extract. All groups were analyzed after 14 and 21 days for their fasting blood glucose level (FBGL) and sexual behaviour (mounting latency and mounting frequency). Analysis of testosterone level was also conducted using the testosterone kit of enzyme-linked immunosorbent assay (ELISA). The data of the treatment group were compared to the control group subjected to one-way ANOVA using SPSS analysis. The FBGL of diabetes-induced rats treated with *Moringa oleifera* leaves aqueous extract significantly decreased ($p < 0.05$) and the plasma testosterone level increased ($p < 0.05$) compared to the negative and positive control groups. Diabetes-induced rats treated with *Moringa oleifera* leaves aqueous extract also showed a significant decrease ($p < 0.05$) in mounting latency and increase ($p < 0.05$) in mounting frequency within 15 min of observation period. This study demonstrated that Moringa oleifera leaves aqueous extract could reduce FBGL significantly and improve the sexual dysfunction of diabetes-induced male rats.

Keywords: Antihyperglycemic, diabetes, *Moringa oleifera*, sexual dysfunction, sexual behaviour, testosterone

BE_27

The Effect of Autogenous, Non-vascularised Periosteum Transplantation on Allograft Bone Grafting for Large Cortical Load-Bearing Bone Defect - A Rabbit Model

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Abstract

A large cortical bone defect is a common problem in orthopaedic practice globally. The use of segmental bone allograft as space filler has become an accepted method. But there are many complications; non-union, delayed union or fracture of allograft. To improve host-graft union, the effect of allograft on a large cortical tibial bone defect in a rabbit model augmented with a non-vascularised periosteal flap was studied. Twelve mature Australian White Rabbits were used. Nine rabbits divided into three groups (A, B, C) and three other rabbits were used as control (group D). A 3cm segmental defect were surgically resected in the mid-shaft of right tibia and replaced with fresh-frozen-allograft transfixed with Kirschner wire. The limb was immobilized with cast. Allograft segments of rabbits in group A, B and C were wrapped circumferentially with non-vascularised periosteal flap harvested from the contralateral tibia. Group D had allograft transplantation only. Healing was evaluated at the end of 2nd, 4th and 6th weeks with plain radiographs, CT scan, and histological evaluation. In rabbits with allograft bone graft wrapped with periosteal flap, bony union was achieved at both ends of the allografts at the end of 4th and 6th weeks. Histologically, solid callus encasing the whole allograft segments at the end of 6th weeks. In the control group, union did not occur at both ends of the allograft segments even up to the end of 6th week. No callus formation surrounding the allograft segments. Fragmentation and telescoping of the allograft segment into the medullary cavity of the host was observed. The use of autogenous, non-vascularised periosteal flap modified the healing process of allograft and maintained the integrity of the allograft.

Keywords: allograft, bone grafting, large cortical defect, periosteum, union

BE_28

Comparison of Fluorescent Spot Test against Quantitative Enzyme Assay for Detection of Glucose-6-Phosphate Dehydrogenase Deficiency

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Abstract

Glucose-6-phosphate-dehydrogenase (G6PD) deficiency is the commonest enzymopathy globally. In Malaysia, the neonatal screening program was introduced in 1980 and uses Fluorescence Spot Test (FST), a semiquantitative method. G6PD deficiency can manifest as oxidative haemolysis and nenonatal jaundice. This is a cross sectional study comparing FST and quantitative assay (BioSensor1 careSTART^{TM}). FST and BioSensor1, including Haemoglobin normalisation, were performed on 287 cord blood samples. Parameters including gestational age and gender were collected from patient's records. 52.6% of our samples were female and the remaining are male. The majority of our patients were Malay (97.2%) whilst the remaining are of Chinese, Arab, Thai and Rohingya ancestry. The mean cord blood G6PD level was 7.1 U/gHb $\pm$ 1.3 SD and the mean cord blood Hb level was 16.0 g/dL $\pm$ 2.7 SD. The prevalence of G6PD deficiency using FST was 4.2% but increased to 13.9% using BioSensor1. FST detects 2% of G6PD deficiency in females, in comparison with males (6.6%) however Biosensor1 detects up to 15.8% of G6PD deficiency in females. The prevalence of G6PD deficiency in Malaysia is 3.1%. Studies have shown that the prevalence can differ substantially if using quantitative assay then with FST. FST miss a significant proportion of females with intermediate levels of G6PD. Quantitative enzyme assays can improve the detection rate of G6PD deficiency leading to early detection of infants who can develop severe hyperbilirubinaemia.

Keywords:

BE_29

Prevalence and Antimicrobial Susceptibilities of *Acinetobacter* spp. in a Tertiary Hospital in Terengganu: A Four-Years Retrospective Study

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Abstract

Acinetobacter species, a Gram-negative pathogen of increasing prominence, is frequently multidrug-resistant (MDR; display resistance to three or more antimicrobial classes) and can thus pose therapeutic challenges, especially in critical care units. This study presents data on species distribution and antimicrobial susceptibility profiles of *Acinetobacter* isolates obtained from the main tertiary hospital in Terengganu, Malaysia, over a period of four years. From 2015 to 2018, 283 *Acinetobacter* spp. were collected from the Microbiology Laboratory of the Department of Pathology, Hospital Sultanah Nur Zahirah (HSNZ). All the isolates were identified to the genospecies level by the amplification and sequencing of the RNA polymerase β gene, *rpoB*. Susceptibilities against a panel of 20 antimicrobials encompassing eight antimicrobial classes were determined for all isolates by using the disc diffusion method. The most prevalent *Acinetobacter* spp. was *A. baumannii* which comprised 86.2% of all *Acinetobacter* specimens obtained from the hospital, followed by *A. nosocomialis* (9.9%), *A. pittii* (2.5%), *A. soli* (1.0%), and *A. oleivorans* (0.4%). Remarkably high MDR rates were recorded by *A. baumannii* (98.5%) whereas the non-*baumannii* acinetobacters were generally non-MDR. *A. nosocomialis*, for example, only showed a 2.5% MDR rate. Interestingly, higher rates of MDR were observed in isolates obtained from non-ICU wards (68.0%) compared to ICU wards (32.0%). Overall, the mortality rate is moderate (65.4%) and is significant among *A. baumannii*-infected patients (p<0.001), supported by their MDR association (p < 0.001). Antimicrobial susceptibility profiles varied by species, but resistance rates were high in *A. baumannii* isolates which ranged from 76% - 84.0% for most of the antimicrobials tested including carbapenems, cephalosporins, aminoglycosides, tetracyclines, and fluoroquinolones. However, all isolates (100%) were susceptible to colistin and polymyxin B and had a low resistance rate towards minocycline (2.0%). This study highlighted the major role of *A. baumannii*, particularly those that are MDR, as the causal agent of *Acinetobacter* infections in the main tertiary hospital in Terengganu over a four-year period. Nevertheless, proper vigilance must be taken to ensure that non-*baumannii* acinetobacters, especially those that are MDR, do not spread in our healthcare settings.

Keywords: *Acinetobacter baumannii*, *non-baumannii* acinetobacters, multidrug-resistant, *rpoB* gene

BE_30

Haematological Parameters Analysis of Hb Adana (Cd59 GGC>GAC [Gly>Asp]) and deletional α-thalassaemia among screened Form 4 students in Kelantan

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Abstract

Hb Adana is a non-deletional, unstable α-variant haemoglobin. This mutation compromises the stability of haemoglobin. Compounded with an alpha globin gene deletion resulting in diverse clinical manifestation to the extreme of transfusion dependency or hydrops foetalis. This study aimed to describe hematological parameters and haemoglobin analysis of Hb Adana and deletional alpha thalassaemia (1 and 2 α gene) in screened Form 4 students in Kelantan. Retrospective review of DNA analysis from 1070 cases of Form 4 students (age 15-17 years old) screened for α-thalassaemia was done for the period of June 2017 to June 2020 in Hospital Raja Perempuan Zainab II. Samples were analysed in stage. Full blood count analysed using Sysmex XE 3000 with MCH <27 pg selected for haemoglobin analysis CE using Capillary 2 Flex Piercing (Sebia). Normal CE result with MCH <25 pg was proceeded with DNA Analysis. The proportion and haematological parameters of molecularly diagnosed Hb Adana and α- deletional thalassaemia were examined. Of 1070 cases, noted 682(63.3%) female predominance over male 396 (36.7%). Identified 31(2.9%) Hb Adana, 2(0.2%) Hb Adana/ $\alpha^{-3.7}$, 702 (65.6%)1-α gene deletion and 335(31.3%) 2-α gene deletions. Statistical analysis showed significant difference in RBC, MCV and MCH between groups (Anova, post-Hoc [Dunnett C] <0.05). There is higher proportion of Hb Adana among screened Form 4 students in Kelantan with significant haematological parameters. With evidence of growing proportion of this relatively uncommon Hb Adana, there is a need for quick and accurate screening for this mutation.

Keywords: Hb Adana, Codon 59 mutation, Cd59 GGC>GAC [Gly>Asp]

BE_31

Recombinant expression of *Plasmodium knowlesi* apical membrane antigen 1 (PkAMA1 DI-II) using two *Pichia pastoris* strains

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Abstract

Human malaria caused by a zoonotic *Plasmodium knowlesi* remains a health concern in Southeast Asia countries. Apical membrane antigen 1 (AMA1) is a potent vaccine candidate and pivotal antimalarial target, it plays a crucial role in parasites-host cell invasion. Soluble and functional active AMA1 immunization in animal models conferred immunogenicity that gives protection against malaria infection. Hence, this study aims to compare the optimum conditions for the expression of recombinant domain I-II of PkAMA1 (rPkAMA1) protein using two *Pichia pastoris* strains, i.e., KM71H and X33. In brief, clone designated as pPicZαA-PkAMA1 was constructed and then cloned into KM71H and X-33, respectively, which allow the secretory expression of recombinant rPkAMA1 (~43 kDa). The protein expression in KM71H and X-33 were induced at OD_{600} 3 with four methanol concentrations, i.e., 0.5%, 1%, 2% and 3% up to 144h. In every time point, one ml of culture was harvested, the supernatant was acetone precipitated, and then visualized using 12% SDS-PAGE. Expression in KM71H was higher compared to X-33 and thus, subsequent large-scale expression was carried out in KM71H based on the optimized conditions (1% methanol, 48 hours). The expressed antigen will be used for the antigenicity study against IgG and IgM antibodies in *Plasmodium* infected indigenous patient sera. Western blot assay only showed a positive signal against IgG antibody in all infected sera and this preliminary finding indicated that the possibility of a long exposure of those indigenous communities to *Plasmodium* infection. In conclusion, the soluble and functional active recombinant protein that produced in this study has the potential to be further developed into an effective vaccine that sustain for long-term protection.

Keywords: *Plasmodium knowlesi*, apical membrane antigen 1 (AMA1), *Pichia pastoris*, KM71H, X-33.

BE_32

Acute and subacute toxicity profile of (3-(2,5-dimethoxyphenyl)-1-(5-methylfuran-2-yl) prop-2-en-1-one, chalcone derivative in experimental animal model

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Abstract

Evaluation of acute and chronic oral toxicity induced in laboratory animals is paramount of the screening step in the assessment of the safety profile of all compounds. 3-(2,5-dimethoxyphenyl)-1-(5-methyl furan-2-yl) prop-2-en-1-one (DMPF-1); synthetic chalcone derivative has been investigated due to its pharmacological properties, including its antinociceptive and anti-inflammatory efficacy. However, the safety profile of this compound yet to be determined to justify its benefits. Due to the scarcity of the scientific data published on its toxicity profile, the present study seeks to highlight the toxicity effect of this compound using acute and subacute toxicity studies in mice model. A single highest dose (1000 mg/kg) and repeated dose (0.1 to 10 mg/kg) of DMPF-1 supplementation were executed. All toxicity study performed was supported by behavioural and body weight changes, haematological, serum biochemical analysis, macroscopic and microscopic analysis of the vital organs. Present result simplifies that single highest dose and repeated dose of DMPF-1 compound supplementation for four consecutive weeks is non-toxic to mice as it caused no significant alteration in mice body weight and behaviour. Besides, no significant changes in haematological and biochemical parameters were observed throughout the supplementation period. Further evaluation of its safety profile was confirmed by the normal architecture of the tissues organs obtained. Collectively, this report showed that DMPF-1 was safe to be consumed at the respective doses. The preliminary toxicity assessment of DMPF-1 based on the conventional toxicity technique gives a significant contribution to the development of a new therapeutic agent.

Keywords: (3-(2,5-dimethoxyphenyl)-1-(5-methylfuran-2-yl) prop-2-en-1-one, chalcone, toxicity study, acute toxicity and subacute toxicity.

Scope: Exploring Novel Researches in Rehabilitation

RE_1

Predictors Of Withdrawal And Craving Among Drug Abusers Before And After Undergoing An Islamic Psychotherapy-spiritual Therapy

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Abstract

Health-related quality of life (HRQoL) and mental health are crucial elements which can affect a range of clinical symptoms among drug abusers, especially withdrawal and craving. Our study intends to predict withdrawal and craving levels (using HRQoL and mental health profiles) among drug abusers undergoing an Islamic psychospiritual therapy (called Inabah) in Peninsular Malaysia. This was a prospective pre- and post–study. All included participants had to be ≥ 18 years, newly-registered and cognitively capable of completing the questionnaires. They were enrolled from three Inabah centres using convenience sampling and completed the Withdrawal Symptoms List and Brief Substance Craving Scale. HRQoL and mental health were measured via the Malay WHOQOL-BREF and Hospital Anxiety Disorder Scale (HADS), respectively. Descriptive analysis and multiple linear regressions were applied separately for pre- and post-Inabah. Almost 80% **(**115 out of 144) eligible Muslim male participants completed both time points (age = 30.5 ± 7.8; single = 71.9%; self-employed = 43.5%; monthly income < RM 1,500 = 75.7%). They underwent Inabah for between 8 to 12 weeks. Both at pre and post-Inabah, depression level was a significant predictor for withdrawal symptoms [$F(2,112) = 18.94,16.73$; $p < 0.05$, $R^2 = 0.38$, 0.35] and craving level [$F(2,112) = 9.007,7.811$; $R^2 = 0.53$, 0.54; $p < 0.001$). In contrast, none of the HRQoL components were significant predictors of any clinical symptoms at both time points. It was clear that mental health issues are important aspects for drug abusers, therefore they must be constantly monitored to facilitate the addiction recovery process.

Keywords: Inabah, withdrawal, craving, drug abuser, Islamic psycho-spiritual therapy

RE_3

Diabetic retinopathy issue among patients with diabetes: A scoping review

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Abstract

Diabetes affects approximately 20 million people in the United States and roughly 10 times that number worldwide. The prevalence of diabetes has tripled in the United States over the past 25 years and has increased rapidly throughout the rest of the world. Experts foresee continued growth in the diabetic population, with projections that it will expand to include 439 million people by 2030. Persons with Diabetes Mellitus are at risk of developing diabetic retinopathy (DR) and having it progress to proliferative diabetic retinopathy (PDR) then progress to macular oedema (ME) with visual loss. The study aims to discover patients with diabetic retinopathy issues which emphasized educational support. A systematic scoping review was done through searches of Medline, the Cochrane Library and CINAHL were used to identify recent primary research, which was reviewed in the context of conclusions from existing reviews. Diabetes patients making countless decision on their progress as they have to attend many appointments which consume their time and energy. Telemedicine and m-health can promote engagement in diabetes self-care by making information and healthcare services more convenient and accessible. The existence of diabetes education videos, patient forums and support groups, and live chatting with health coaches can provide further support to patients through a smartphone application interface. Thus, more interactive and user-friendly educational products that provide interactive measures and usage of layman terms should be produced.

Keywords: Eye, Diabetic retinopathy, education, mobile health

RE_4

Psychological Status In Postural Persistence Perceptual Dizziness (PPPD)

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Abstract

Persistence Postural perceptual dizziness (PPPD) is one of current and second commonly diagnosis commonly face by 30 to 50 years. This pathology arise from long standing dizziness case mainly vestibular problem. Several psychological reported among PPPD cases such as obsessive-compulsive, depression and anxiety. We reported a case of PPPD patient presented with psychological involvement. A 44 year old, woman, married presented with chronic imbalance and floating sensation for two years. There are no symptoms of vertigo, headaches, hearing difficulties and fullness of ear. On examination, Dix-Hallpike test done at both side and the result revealed negative for benign paroxysmal positional vertigo (BPPV). In Bal Exzz foam test, the result revealed positive that the patients need of treatment. The patient was completed the Malay version Vertigo Symptoms Scale (MVVSS), Back Anxiety Inventory (BAI), Back Depression Inventory (BDI), Automatic Though Questionnaire (ATR). Based on the history and examination results, this patient was confirmed and diagnosed with persistent postural-perceptual dizziness (PPPD). The final scores showed mild score Malay version Vertigo Symptoms Scale (MVVSS), moderate Back Anxiety Inventory (BAI), mild-moderate Back Depression Inventory (BDI) and very severe depression in Automatic Though Questionnaire (ATR) level. Having this kind of case study able to emphasizes and increase awareness among clinician regarding the PPPD especially dealing with middle age group that came with a typical vestibular symptoms. Accurate diagnosis essentially important since us will greatly impaired the further management for every cases

Keywords: Persistence Postural perceptual dizziness (PPPD), psychological, vestibular disordered

RE_5

Risk factors and Strategies in Prevention of Incidental Recurrence among Intracerebral Hemorrhage Survivors

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Abstract

Spontaneous intracerebral haemorrhage (ICH), is one of stroke types, accountable for about 78% to 88% of all intracranial haemorrhages and is significantly associated with high rate of mortality and disability worldwide. ICH is defined as bleeding that occurrs directly within the brain parenchyma due to chronic hypertension. ICH survivors are at high risk for both recurrent ICH and ischemic stroke. The incidence of primary ICH is frequently observed among young adult resulting from non-adherence to antihypertensive medication. Non-adherence to the antihypertensive medication is the underlying risk factors of recurrent ICH and needs further nursing consideration. Recurrent ICH among young adults has a dismal prognosis: 3 - months mortality is 17%, 10 years is > 25% and long term disability is common. The research finding revealed that ICH patients and their caregiver were lacking in knowledge about ICH-related stroke, preventive strategies in minimizing incidence of recurrent ICH, post-stroke complications and treatment strategies to improve the recovery outcome post-ICH. Current research recommended knowledge literacy on recurrent ICH risk's epidemiology, etiologies, risk factors associated with risk prevalence of ICH recurrence, diagnosis, treatment such as using anti-thrombotics, statin and other related medication and the outcome of ICH in young adult to improve secondary prevention in ICH occurence. In conclusion, it is important to ensure the strategies in minimizing the incidence of recurrent ICH be applied to ensure a better recovery outcome and thus, improving the quality of life of post-ICH survivors.

Keywords: Intracerebral Hemorrhage (ICH), Recurrent ICH, Hypertension, adherence to hypertension medication

RE_6

Relationship between Depression and Physical Fitness among Postpartum Women Attending Klinik Kesihatan Kepala Batas, Pulau Pinang

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Abstract

Depression has been identified as the primary mental health problem among postpartum women. At the same time, low physical fitness might be one of the significant in the health-related components. However, research is scarce concerning this relationship in postpartum women. Therefore, this cross-sectional study aimed to determine the correlation between depression and physical fitness among 6 to 12 months of postpartum women. A total of 140 postpartum women, (age = 32 ± 4.9 years) at Kepala Batas Health Clinic, Pulau Pinang were recruited. Data on demographics, anthropometric, depression as measure by the Edinburgh Postnatal Depression Scale, and physical fitness as measured by a 2-minutes step test were collected. About 19.6%, 14 %, and 2.1% of the subjects were overweight, obese, and severely obese, respectively, with a mean body mass index was 24.7 ± 4.96 kg/m2. 20.6% of postpartum women had experienced mild to moderate depression within a year and low physical fitness (19.2%). Analysis from Spearman's correlation showed there was a negative correlation between the level of depression and physical fitness ($r=-0.219$, $p<0.01$). Postpartum women who were presented with a high level of physical fitness may have a low risk of developing depression. Therefore, these factors should be emphasized when healthcare professionals are designing interventions to promote physical activity for the betterment of mental well-being among postpartum women.

Keywords: *Depression, Postpartum women, Physical fitness*

RE_7

The Effectiveness of the Drill Method Using Flashcard Media in Improving the Skills of Children with Disabilities Grahita to Wash Hands with Soap (CTPS) at the Meulaboh State School (SLBN) in Meulaboh, West Aceh Regency

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Abstract

Hand washing skills are an activity that consists of a few simple steps. In normal individuals, they are able to wash their hands easily without significant difficulty, in contrast to children with mental retardation, washing hands for them feels difficult to do because of their limitations in thinking. There needs to be an appropriate method so that the implementation of activities can be taught to mentally retarded children appropriately. The purpose of this study was to determine the effectiveness of the flashcard-based drill method on the skills of washing hands with soap for mentally retarded children in SLB Negeri Meulaboh, West Aceh Regency. This type of research is quasi experimental using one group pretest-posttest. The sample method used was accidental sampling, where every population found in the field who was willing to be a research sample totaled 23 people. The analysis used was univariate analysis and bivariate analysis. Wilcoxon test results showed an increase in skills (p = 0.003) CTPS in children with intellectual disabilities. Apabils value P value <0.05, then there is a significant difference between pre test and post test. So the results of this study are the flashcard media drill method is effective in improving the skills of washing hands with soap for mentally retarded children.

Keywords: mentally retarded, CTPS, Drill, Flashcard.

RE_8

Promotion of Healthy Handwashing through Audio Visual Aids (AVA) Aids: Preventive Covid-19 Era New Normal

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Abstract

Children are vulnerable to be contaminated with other people, whether immediate family and other people in their environment, making it easy to get infect from the disease. Therefore it is necessary to increase their awareness to be able to maintain their cleanliness. One of the strategies is preventive efforts by washing hands properly. CTPS (washing hands with soap) is the most affordable and easy form of hygiene intervention compared to the results of approaches to hygiene with other methods. This will be proven by reducing risk factors for dangerous infectious diseases such as Covid-19. Promotion of proper hand washing consists of seven steps which was shown through Audio Visual Aids (AVA) aids or hearing aids. The purpose of this research is to highlight as a strategy to prevent the Covid-19 by promoting healthy hand washing through movement and singing with Audio Visual (AVA) aids so that it becomes an effective reference in implementing the PHBS program at the school level. This research design used quasi-experimental (quasi-experimental) with a Non-Equivalent Control Group design. This research was conducted online and involved parents, students aged 9 to13 years old who were in grades V and IV. This research was located at SD Negeri 14 (State Elementary School 14) Meulaboh. The number of samples were 75 students which divided into 3 classes which were A, B, are treatment group and C are control group. A statistical analysis used the t-dependent test or the t-paired sample t test. The results of the dependent test in the treatment group (Class A and B) obtained with P- *value* of 0.00 0 , which means that there is a significant difference in knowledge between before and after getting the correct hand washing promotion through motion and singing with audio aids. Visual aids (AVA) and students can practice the 7 steps of how to wash hands properly. The existence of a significant impact on the promotion of hand-washing application through movement and singing by means of auxiliary Audio Visual Aids (AVA) to increase knowledge of students of SD Negeri 14 Meulaboh. Students are advised to be able to wash their hands properly and correctly , of course there needs to be support from the family in this case, especially parents and as well as the school.

Keywords: promotion, washing, hands, AVA

RE_9

Study of Community Physical Distancing Behavior during the COVID-19 Pandemic

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Abstract

The COVID-19 pandemic (Corona Virus Disease 2019) or known as Corona virus infection was first discovered in the city of Wuhan, China at the end of December 2019. The spread of this virus has finally led governments around the world to take a step that had never happened before, namely travel restrictions and social activities in many countries. Physical distancing is one of the most important efforts to prevent the spread of COVID-19 and is predicted to continue during this pandemic. Epidemiologically, the spread or distribution of this disease has had a wide impact on social and other aspects of the world. There are many literature reviews about the COVID-19 outbreak, such as people's behavior during the pandemic, causes, natural history of the disease, even to preventive and medical treatment. Since the end of 2019 until now (August 2020) there have been many writings or literature reviews that have been published at both the national and international levels, so this paper aims to review the literature review related to the physical distancing of society during the COVID-19 pandemic.

Keywords: COVID 19, Society, Physical Distancing, Behavior

RE_10

The Development of Concept Mapping Care Plan to Evaluate Students' Performance at the Clinical Practices

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Abstract

Concept mapping care plan (CMCP) is related to the expectation that today's nursing students must master a constantly expanding body of knowledge and apply complex skills in rapidly changing environment. Concept mapping care plan was developed by researcher and validated by ten expert panels using three rounds of Delphi technique. The development of concept mapping care plan at clinical practices was used to evaluate the students' academic achievement in clinical pratices.The respondents were 218. This study was a two group quasi experimental study with pre and post-test design. The experimental and control groups received education using concept mapping and lecture method respectively. The data was analyzed using inferential and descriptive statistic. P-values less than 0.05 were interpreted as significant. The mean scores of CMCP during clinical practices for experimental group was 65.23 as compare with control group which was 59.33. By using a paired t-test, revealed that there was statistically significant difference between experimental and control groups, and p value <0.05. CMCP is a good assessment tool to nursing educators to prepare nursing students for better critical thinking and expected to function effectively after graduation. Researcher believe that the development of CMCP can replace the nursing care plan using nursing process in the clinical practices. CMCP give benefit to the nursing students and allowed the students to determine the patients' problems, enhance the knowledge and understanding of the nursing students and also improving the quality of clinical education.

Keywords: Concept mapping care plan, clinical setting, nursing students.

RE_11

Application of newly developed Cardiovascular Disease (CVD) risk calculator among healthcare providers in predominantly Malay population state in Malaysia

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Abstract

Guidelines for the primary prevention of cardiovascular disease (CVD) recommend the use of risk-assessment methods to identify high-risk patients who can benefit from lifestyle changes or drug treatment. Although all these risk-prediction methods are based on the same principle, they produce different risk estimates. The aim of this study was to compare the agreement of the most recently introduced cardiovascular risk-prediction method; Globorisk with an established globally accepted CV risk-prediction method; General Framingham CVD risk score when applied to healthcare providers aged 40 and above. Four different risk-assessment methods; namely Globorisk Office, Globorisk Lab, Framingham 10-year CVD BMI and Framingham 10-year CVD lipid were applied to 520 healthy primary healthcare staffs across Kelantan State, Malaysia. The extent of concordance among the different risk-assessment methods was determined by kappa test for categorical classification (Low Risk, Moderate, High and Very High). Interclass correlation (ICC) analysis and was applied for continuous risk score value by different methods. For categorical agreement, The Globorisk Office and The Framingham 10-year CVD BMI has Kappa value of 0.622 ± 0.08 as compared to the other pair (Kappa value = 0.611 ± 0.12). For numerical risk score agreement, the ICC values of both pairs are 0.816 ± 0.03 and 0.884 ± 0.03. In conclusion both CVD risk calculator pairs demonstrated both substantial Kappa value and good ICC values. These findings suggest both Globorisk and Framingham could be used for Malaysian population for CVD risk estimation and will be suggested to be incorporated into Malaysia CVD Prevention Guideline for primary setting

Keywords: CVD, risk score, calculator, performance, agreement, prevention

RE_12

Mindfulness Intervention on Anxiety and Depression of Women with Endometriosis: A Scoping Review

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Abstract

Endometriosis is associated with chronic pelvic pain, infertility, fibromyalgia, dysmenorrhea and dyspareunia, which will lead to psychological complications such as anxiety and depression. Many psychological interventions, such as mindfulness intervention are now established to treat anxiety and depression regardless of the cause. However, very few studies have explored the effectiveness of the psychological intervention in women with endometriosis. The aim of this review is to examines the evidence of mindfulness intervention on anxiety and depression for women with endometriosis and to identify gap for future research. Electronic databases used included Scopus, Web of Science, Science Direct, CINAHL, and Google Scholar. PRISMA guideline was used to guide the identification, screening, eligibility, inclusion, and exclusion of articles. A total of 1527 articles were retrieved based on the initial selection criteria, of these 124 full-text articles were included after screening. Finally, 12 articles were selected. These articles were reviewed and screened for relevance with mindfulness intervention on anxiety and depression among those with obstetrics & gynaecology, chronic diseases and psychiatric according to their research design. Analysis of studies that include quantitative, qualitative, and mixed-method results showed the effectiveness and acceptance of mindfulness intervention for anxiety and depression. Quantitative analysis studies revealed that a mindfulness intervention was significantly effective in reducing anxiety and depression. The qualitative finding has shown that positive themes and acceptance. In our study, it will investigate the effectiveness of mindfulness intervention on anxiety and depression among women with endometriosis in the perspective of women health in globalization.

Keywords: Mindfulness, mindfulness intervention, anxiety, depression, endometriosis.

RE_13

Gender Differences in Instrumental Activities of Daily Living (IADL) Disability Among Elderly Attending Health Clinics in Kelantan

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Abstract

Aging carries with it to higher disability rate due to the burden of chronic illness and injury. Disability is described as a difficulty in performing daily activities, such as instrumental activities of daily living (IADL) which consists of complex activities that allow an elderly to live independently. Women consistently reported more IADL disability than their male counterparts. Even though there are several studies done on gender differences in IADL disability, such studies in Malaysia are still lacking. Thus, this study aimed to determine the gender differences in IADL disability among elderly attending health clinics in Kelantan. A guided questionnaire consists of sociodemographic characteristics, health-related conditions, Lawton IADL scale, Elderly Cognitive Assessment Questionnaire (ECAQ), Geriatric Depression Scale (GDS) and Duke Social Support Index (DSSI) was carried out. Two-tailed Chi-square analysis was performed to test for statistical differences across gender. A sample of eligible 248 elderly from 12 health clinics in Kelantan were included, 36.3% of them had disabled IADL status. Women showed higher prevalence rates of IADL disability compared to men. There were significant association between gender and age group, marital status, level of education, individual monthly income, living arrangement and smoking status. Among the eight IADL domains, the common disabilities in women were inability to handle finances (100%) and arranging own transportation (87.2%) whilst men had disability to do housekeeping (100%) and food preparation (52.0%). These results suggest underlying differences in IADL disability between women and men. These differences may be due to pathology changes and environmental factors as well as sociocultural context of gender roles in performing daily activities.

***Keywords**:* disability, elderly, factors, gender, IADL, Lawton scale

RE_14

Subjective Visual Vertical (Svv) Finding In Healthy Adults: Comparison Between Clockwise (Cw) And Counterclockwise (Ccw) Condition

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ABSTRACT

Subjective Visual Vertical test (SVVT) is an assessment that we can do to rule out vestibular function status specifically the function of the utricle in the inner ear. The purposes of this test are to assess the perception of verticality or to detect abnormal subjective tilt. In normal persons, the ability to perceive verticality is quite good. This ability depends on input from visual, vestibular, and somatosensory systems. Both utricle and saccule contribute to the sense of verticality and horizontality. This study aimed to compare the clockwise and counter clockwise conditions for BAL EXzz SVVT findings among healthy adults aged 18 to 35 years (mean age of 23.10 years). This was a repeated measures study that recruited 30 healthy adults (50% were males and 50% were females). After undergoing screening by using Malay Version Vertigo Symptom Scale (MVVSS), the participants underwent BAL EXzz SVVT testing using bucket method for the clockwise condition and then proceed with the counter clockwise condition. The SVVT was carried out according to the standard protocol and three measurements were made on the clockwise direction and three on the counter clockwise direction. The examiner selected the starting point, the subject then rotated the bucket and it stopped when the subject considered the line reached the vertical position. The results showed that there is statistically significant difference between clockwise and counter clockwise readings ($p<0.05$). However, there is no significant correlation between clockwise and counter clockwise conditions. In conclusion, BAL EXzz SVVT is a quick, non-invasive, and extremely reliable test to evaluate the structural and function of the utricle and saccule. SVV test can be measured with both clockwise and counter clockwise conditions.

Keywords: SVVT, BAL EXzz, MVVSS, verticality, horizontality, clockwise

RE_15

Relationship between Depression and Physical Fitness among Postpartum Women Attending Klinik Kesihatan Kepala Batas, Pulau Pinang

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Abstract

Depression has been identified as the primary mental health problem among postpartum women. At the same time, low physical fitness might be one of the significant in the health-related components. However, research is scarce concerning this relationship in postpartum women. Therefore, this cross-sectional study aimed to determine the correlation between depression and physical fitness among 6 to 12 months of postpartum women. A total of 140 postpartum women, (age = 32 ± 4.9 years) at Kepala Batas Health Clinic, Pulau Pinang were recruited. Data on demographics, anthropometric, depression as measure by the Edinburgh Postnatal Depression Scale, and physical fitness as measured by a 2-minutes step test were collected. About 19.6%, 14 %, and 2.1% of the subjects were overweight, obese, and severely obese, respectively, with a mean body mass index was 24.7 ± 4.96 kg/m2. 20.6% of postpartum women had experienced mild to moderate depression within a year and low physical fitness (19.2%). Analysis from Spearman's correlation showed there was a negative correlation between the level of depression and physical fitness ($r=-0.219$, $p<0.01$). Postpartum women who were presented with a high level of physical fitness may have a low risk of developing depression. Therefore, these factors should be emphasized when healthcare professionals are designing interventions to promote physical activity for the betterment of mental well-being among postpartum women.

Keywords: Depression, Postpartum women, Physical fitness

Scope: Recent Advancements of Research in Medical Imaging

ME_1

Effects of smooth, medium smooth and medium reconstruction kernels on image quality in three-phases CT of liver

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Abstract

Computed Tomography (CT) is the most common modality used in liver imaging due to its excellent low-contrast image resolution. Filtered-back projection (FBP) is the most common algorithm used in clinical CT image reconstruction and reconstruction kernel is one of the most important parameter that affect image quality. This study aimed to evaluate the effects of applying three different reconstruction kernels on image quality in three-phased CT of liver. A total of 63 CT liver images including normal liver (n=43) and liver lesion (n=20) were retrospectively reviewed. Smooth (B20f), medium smooth (B30f) and medium (B40f) reconstruction kernels were employed in image reconstruction process. Mean attenuation, image noise and signal-to-noise ratio (SNR) values from each kernel reconstruction were quantified and compared among those kernels using One Way Analysis of Variance (ANOVA) statistical analysis. Results for normal liver showed that there was a significance different of the mean of image noise (P<0.001) and SNR (P<0.001) of group B20f as compared to that of the other groups. Significant changes of image noise and SNR were observed in the normal liver (P<0.001, respectively). However, for liver lesion, there was no significant difference of mean attenuation, image noise and SNR values of all groups (P=0.996, P=0.081 and P=0.372 respectively). However, no significant changes of mean attenuation, image noise and SNR were demonstrated in the liver lesion (P<0.05). Smooth reconstruction kernel (B20f) has the ability to significantly improve the image quality of normal liver. Application of smooth (B20f), medium smooth (B30f), and medium (B40f) kernel reconstructions would significantly affect the image noise and SNR in normal liver of CT images instead of lesion liver. Hence, proper selection of reconstruction kernel is important in CT images reconstruction to improve precision in diagnostic CT interpretation.

Keywords: Image quality, reconstruction kernels, three-phased CT.

ME_2

Investigation the Shelf Life of Banana 'Mas' (*Musa acuminata Colla*) Using Gamma Irradiation

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Abstract

The study aims to investigate the shelf life of banana Mas (*Musa acuminata* Colla) using gamma rays in Malaysia. An experimental study to investigate the shelf life of banana Mas (*Musa acuminata* Colla) using gamma radiation in Malaysia. Different doses were given to each group of banana Mas which are 0 (untreated control), 0.4, 0.8 and 1.2 kGy. The irradiated groups were being irradiated by gamma radiation at the National University of Malaysia (UKM) using Gamma Cell 220 Excel Cobalt-60 source. The evaluation on the shelf life of each group of banana Mas was being recorded every day for 2 weeks after irradiated by Gamma Cell 220 cobalt-60 source. In this study, the data collected was the peel colour of the samples, the decay rate for each group and the physiological weight loss of the samples. Findings shown that gamma radiation affects the peel colour, physiological weight loss (PWL) and decay rate of bananas. A high dose of gamma radiation causes the darkening of the peel and accelerates the ripening process depend on the varieties of the bananas. Overall, group B (0.4 kGy) has the lowest PWL and decay rate when compared to the other groups. Gamma radiation can be used as an alternative treatment to preserve the banana Mas by using an appropriate range of gamma irradiation dose. It is concluded that the dose of 0.4 kGy was the most effective one in inhibiting the ripening process for banana Mas when compared to the other group samples. Therefore, the higher the dose of gamma radiation applied to the banana, the shorter the shelf life of banana.

Keywords: Banana, Gamma irradiation, Shelf life

ME_3

Variations of BI-RADS 5 in Mammography by Age, Ethnicity, and Breast Density: A Retrospective Study in University Malaya Medical Centre

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Abstract

Breast cancer is the most frequently diagnosed cancer among Malaysian women. BI-RADS 5 category in the mammogram report found breast lesion with a highly predictive of malignancy. Age, ethnicity and breast density are primary risk factor in developing breast cancer. The objective of this study was to identify age, ethnicity, and breast density differences in BI-RADS 5 among mammographic patients at University Malaya Medical Centre (UMMC). This study was conducted as a retrospective study from 2015 to 2019 in which women aged 40 years and above in BI-RADS 5 category among mammography patients included. Patient's data on age, ethnicity, and breast density were collected by using the Radiology Information System (RIS) of UMMC. Among 110 cases, 22 (20%) were in the age group of 40-49, 31 (28.2%) in the age group of 50-59, 39 (35.5%) in the age group of 60-69 while the 18 (16.4%) were between 70-79 years old. By ethnic distribution, the majority were Chinese with 51 (46.4%), followed by Malays 47 (42.7%), and the least were Indians with only 12 (10.9%). 16(14.5%), 45(40.9%), 37(33.6%), 12(10.9%) were classified as having categories A-D breast density, respectively. In conclusion, the study indicated women were in the age group of 60-69 and Chinese ethnic group are most likely to develop breast cancer. Although many studies have shown that risk factor for breast cancer is greater for denser breast tissue, this present study shows that BI-RADS B (scattered fibroglandular breast tissue) is most likely to have breast cancer.

Keywords: BI-RADS 5, mammography, age, ethnicity, breast density

ME_4

Photon Shielding Properties of an Ordinary and Heavy Concretes by Using EGS5 Code

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Abstract

Concrete is the most common shielding material for ionising radiation either for X-ray or gamma sources. While considering the photon attenuation coefficient (μ) and its related parameters for photons shielding, it is necessary to account for its transmitted photons energy spectra. An adequate thickness of concrete is necessary to protect the radiographers outside of the irradiation room. By using EGS5 code, the shielding capabilities of two types of concretes (ordinary and heavy) were calculated for X-ray 150 kVp and Am-241 gamma source. In order to verify the EG5S result, the output will be compared with the theoretical data. The percentages of transmitted photons will also be calculated for both concrete. Detail results such as transmitted photon energy spectra and dose rates are going to be discussed in this study to ensure the safety of the radiation area for both radiographers and patients.

Keywords: Ordinary concrete, heavy concrete, EGS5 code, photon attenuation coefficient (μ), X-ray 150 kVp, Am-241.

ME_5

Development and Validation of Questionnaire to Assess the Knowledge and Awareness on Dose Creep among Medical Imaging Students

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Abstract

Advancement of technology in radiography creates an issue called the dose creep. Dose creep is defined as the unnecessary exposure to patients during a radiographic examination. Most literature shares that human factor is the main cause of dose creep. Therefore, in this study, the focus is to investigate the level of knowledge and awareness among the medical imaging students on dose creep by using a newly developed and validated questionnaire. A newly developed and validated questionnaire was used because, there is no readily questionnaire available. This cross-sectional study involving 88 undergraduate students from the School of Medical Imaging, Faculty of Health Sciences, Universiti Sultan Zainal Abidin. Firstly, the validity and reliability of the questionnaire were tested using Cronbach's alpha and Exploratory Factor Analysis (EFA) respectively using the Statistical Package for the Social Sciences (SPSS) software version 25. In addition to that, the knowledge and awareness levels on dose creep among medical imaging students with and without clinical trainings were also investigated. In conclusion, the Cronbach's alpha and Exploratory Factor Analysis (EFA) test results shows that the questionnaire is valid and reliable to be used. The findings also showed that the knowledge and awareness levels on dose creep for students with clinical trainings are higher than those without.

Keywords: Dose Creep, Digital Radiography, Medical Imaging Student, Clinical Training, Validity, Reliability, Exploratory Factor Analysis, Cronbach's Alpha

ME_6

The Role of Color Doppler Ultrasound in Detecting Nephrolithiasis with Twinkling Artifact

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Abstract

It is crucial to pick the appropriate imaging modality that is accurate and safe for the patient. Ultrasound imaging is very helpful imaging in diagnosing stones inside kidneys but there are fewer studies regarding nephrolithiasis in Malaysia were published covering the twinkling artifact value. The aims of this retrospective study will reveal the prevalence, association and difference of risk factor (age and gender) of nephrolithiasis and diagnostic accuracy (specificity, sensitivity, PPV, and NPV) of ultrasound in detecting it. There are 138 medical records from January 2019 until December 2019 retrieved in PPUM. Samples were obtained through convenience sampling from Picture Archiving and Communications System (PACS) reports. All of the 138 patients who underwent KUB ultrasound were suspected with nephrolithiasis and scanned with color Doppler ultrasound to detect stone, recorded in the records. The diagnosis of color Doppler ultrasound of KUB was compared with gold standard Computed Tomography (CT) scan of nephrolithiasis. The data was computed in IBM SPSS for statistical analysis by using Pearson's Chi square to find association between gender and having nephrolithiasis. Independent t-test was used to find the statistical difference between age and having nephrolithiasis. Next, Crosstabs was used to calculate the accuracy of ultrasound twinkling artifact. This research found that the prevalence of nephrolithiasis is 48%. In addition, there was no significant association between gender and developing nephrolithiasis. The mean age of the population either with or without nephrolithiasis was not statistically different. There were 66 patients had nephrolithiasis. Color Doppler ultrasound detected 62 patients with nephrolithiasis and four patients were false negative. Thus, the sensitivity is 93.9%. Ultrasound correctly identified 69 patients with absent of nephrolithiasis but wrongly in recognizing three patients who do not have the disease. The PPV, NPV and accuracy obtained were 95.4%, 94.5% and 95% respectively. Imaging plays a crucial role in the process of diagnosis of nephrolithiasis disease in patients. The color Doppler ultrasound can efficiently detect the nephrolithiasis, thanks to the twinkling artifact.

Keywords: Nephrolithiasis, Color Doppler Ultrasound, twinkling artifact, accuracy

ME_7

Resting State Functional Mri (Rs-Fmri) Brain In Healthy Subjects: Comparison Between Open And Close Eyes

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Abstract

Resting-state functional magnetic resonance (rsfMRI) are known for its capability in producing consistent pattern of brain activation especially on connectivity of the brain. Only a few researchers have demonstrated the influence of the eye state on the brain activity. The purpose of this research is to compare the head movement (pitch, raw, yaw and *x ,y, z*) and the brain activation area in eyes open (EO) and eyes close (EC) condition on healthy subject during resting state. rsfMRI protocols was executed using 3T Philip Achieva MRI scanner. Fourteen healthy subjects participated and were scanned for two times. Firstly, they were scanned with eyes close and secondly, with eyes open. The statistical data was analysed using Statistical Parametric Mapping, Institute of Neurology at University College London (UCL), UK.) version 12 (SPM12) under the MATLAB (R2016b) (Mathworks Inc. MA, USA) platform. The head movement were obtained from realignment pre-processing data whereas the brain activation was analyzed by the number of voxels (NOV) activated in fixed effect (FFX) and random effect (RFX) analyses. The result shows no significance difference in head movement and the brain activation in EO and EC condition. The head movement and the brain activation does not influence by the eye conditions either in EO or EC. In conclusion, the findings suggested that the radiographer and the subject can choose either to open or close the eyes during the fMRI acquisition. This positive finding is useful for the patient especially in children and claustrophobia patient.

Keywords: Resting-state functional magnetic resonance imaging (rsfMRI), eyes open (EO), eyes close (EC), brain activation.

ME_8

Investigating the relationship between exposure index (EI) and radiation dose in digital chest X-ray: A phantom study

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Abstract

Digital chest X-ray (CXR) is the most common examination performed in the Radiology department. Exposure Index (EI) is the measure of the potential radiation dose received by an individual during a radiographic examination. EI can be influenced by the exposure factors such as tube voltage (kV) and tube current exposure time (mAs). The purpose of this study is to investigate the relationship between EI and radiation dose in CXR. An anthropomorphic chest phantom was exposed with a combination of 16 exposure factors to obtain the EI and the entrance surface dose (ESD) values. The mAs showed a negative and significant correlation with EI (r= -0.812). kV and EI had a negative and weak correlation with each other (r= -0.570). The EI showed a negative and strong correlation with ESD (r= -0.968). In conclusion, EI and radiation dose have significant effects to each other. The manipulation of exposure factors and utilisation of EI is essential to ensure optimal radiation dose is given to the patients during any digital radiographic examination including CXR.

Keywords: , exposure factors, chest radiography, dose optimisation, radiation dose

ME_9

Development and Validation Questionnaire of Assessment of Electromagnetic Radiation (EMR) Toward Knowledge, Awareness and Practice (KAP) among UniSZA staff in Campus Gong Badak and Tembila

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Abstract

Electromagnetic radiation already exists in our daily life as it occurs both in natural environment and from the modern technology. It also classifies into two categories which are ionizing radiation and non-ionizing radiation. To develop and validate questionnaire for assessment of Electromagnetic Radiation (EMR) pertaining Knowledge, Attitude and Practice (KAP) among UniSZA staff in UniSZA Campus, Gong Badak and Tembila. A cross-sectional study will be carried out among UniSZA staff in Campus, Gong Badak and Tembila. The questionnaires involve open-ended and close-ended structured questions that divided into four sections which are socio-demographic, scores of knowledge, attitudes and practices (KAP) pertaining to electromagnetic radiation (EMR) and will be administered to two hundred sixty-seven Unisza staff at ten faculties. By using Principal Component Analysis (PCA) and Cronbach Alpha in IBM Statistical Package for the Social Sciences (SPSS), the result showed that the available variables in this research for validity and reliability test are nineteen variables. Domain knowledge contributes four variables, while domain attitude and domain practice contribute eleven and four variables. The total of nineteen variables resulted from the validity and reliability test then can be used as a significant basis and an inevitable reference in planning for future education framework for all UniSZA staff concerning electromagnetic radiation.

Keywords: Electromagnetic Radiation, Knowledge, Attitude, Practice, Validation, Principal Component Analysis, Cronbach Alpha

ME_10

Knowledge and Awareness on Radiation Protection among Radiographers in Pusat Perubatan Universiti Malaya

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Abstract

All imaging modalities use radiation for diagnosing the patient except for MRI and ultrasound which use magnetic field and sound wave to produce image respectively. Ionizing radiation emitted by those modalities can cause biological damages and harmful effect in human body system. Therefore, radiation protection measure awareness and knowledge has an important role among radiographers to minimize the effect of radiation. A survey was conducted by distributing the validated questionnaire to compare the awareness and to identify the level of knowledge on radiation protection among radiographers at Pusat Perubatan Universiti Malaya (PPUM). There were no similar studies performed previously at the selected teaching hospital. The questionnaire distributed was related to demographic characteristics such as age, gender, academic qualification, work experience and knowledge and awareness on radiation protection questions. A total of 64 radiographers participated in this study and data was collected through self-administered questionnaire. The data was analyzed using IBM SPSS software for Windows, version 20.0. The results showed there was no significant differences in mean score between gender, educational level and working experience year with p=0.506, p=0.576 and p=0.691 respectively. The total mean score of knowledge and awareness on radiation protection of female participant were slightly higher than male participant. The total mean score of knowledge and awareness on radiation protection of diploma holder is slightly higher than degree holder. The total mean score of knowledge and awareness on radiation protection of respondent with working experience of 7-9 years was the highest compared to respondents with 1-3 years, 4-6 years, 7-9 years and 10 years and above working experience years. The present findings suggest that there is a reasonable level of knowledge and awareness on radiation protection among radiographers in PPUM. Overall awareness and knowledge of radiation was satisfying where further improvement can be made through workshops or other trainings.

Keywords: Ionizing radiation, protection knowledge, awareness, radiographers

ME_11

The Prevalence of Deep Vein Thrombosis in Ultrasound Confirmed Patients

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Abstract

Pulmonary Embolism (PE) is the third most popular cause of death from cardiovascular disease after stroke and heart attack (Giuntini, 1995). Since prolonged Deep Vein Thrombosis (DVT) can lead to pulmonary embolism, this study conducted to study its risk factors, especially for outpatients. This study aims to determine the specific age group, which gender; male or female, and which ethnic in Malaysia have a high risk of acquiring this disease. This study is a retrospective study. Data of patients with this disease are retrieved from the University Malaya Medical Centre database from 1st January 2016 till 31st December 2019. This study suggests that both the prevalence and incidence of deep vein thrombosis are strongly age-related, increasing as the age increases. According to the collected data, the mean age of outpatients with this disease is 65.4 (18.7). Furthermore, it can be concluded that females have a high risk of acquiring this disease compared to males. As for ethnic, the risk for deep vein thrombosis is the highest in Chinese, followed by Malays and Indians with the lowest. This study helps to reduce morbidity and mortality rates caused by this disease by allowing effective management of patients along with establishing the most proper type and intensity of the anticoagulant therapy.

ME_12

Diagnostic Accuracy and Risk Factors of the Cholelithiasis among Patients Undergoing Abdominal Ultrasound at University Malaysia Medical Centre

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Abstract

Cholelithiasis or gallstones disease is one of the most prevalent pathology in the biliary disease family and its occurrence closely related to certain risk factors. These risk factors are different depending on the geographic and societies. To evaluate the prevalence, risk factors (gender, age) and the diagnostic accuracy of ultrasound in detecting the cholelithiasis in the population at Pusat Perubatan Universiti Malaya (PPUM). Involved 384 study participants, the prevalence, risk factor and diagnostic accuracy were evaluated through a retrospective observation study. Sample selection was based on the proportional quota sampling as the sample was collected until the sample size is fulfilled. A total of 384 eligible subjects were enrolled in this study; 195 (50.78 %) were females and 189 (49.22%) were males. The prevalence of cholelithiasis from this study was 20.3%. Male gender, age above 40 years was not significantly associated with the presence of the cholelithiasis. The diagnostic accuracy for male gender achieved perfect score 100 %. For female gender, 99 % are recorded for sensitivity and positive predictive value while 100% for the specificity and negative predictive value. The study proposes the updated statistic in area of population and future study can be conducted to improve the findings on the modified risk factors.

Keywords: Cholelithiasis, prevalence, positive and negative predictive factor, sensitivity, specificity, accuracy

ME_13

Assessment of Knowledge among Radiographers at University Malaysia Medical Centre Regarding The Computed Tomography (CT) Exposure Parameters

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Abstract

Computed Tomography *(*CT) scan is a well-known medical modality that contribute to a higher dose. Although CT scan contributes to a higher dose, it uses for diagnostic evaluation increased over the past two decades. The effect of dose to the human body is identified and known based on previous research by scientists thus concept of ALARA (As Low As Reasonably Achievable) should be implemented in all medical modalities that used ionising radiation. The objective of this study is to evaluate and assess radiographer's knowledge on CT scan parameters and their effect on the patient dose and image quality. As the responsible healthcare professional dealing with the radiation in the medical field, it is a must for us to know how to minimise the dose received by the patient and maintaining the diagnostic image quality. A cross-sectional study where the questionnaire was distributed to the 56 radiographers at University Malaya Medical Centre (UMMC). The participants were recruited through convenience sampling method. The results obtained for the p-value for gender ($p=0.809$), level of education ($p=0.633$) and CT handling experience years ($p=0.064$) are $p>0.05$. Thus, there is no statistically significant difference of mean score knowledge of radiographers regarding the CT exposure parameters among the gender, level of education and CT handling experience years. In conclusion. gender, level of education and experience in CT handling do not influence the radiographer's knowledge regarding the CT exposure parameters. Radiographers demonstrate an overall good knowledge, but certain parts are lacking. Providing a further educational course focusing on CT parametric exposure and its effect on patient dose and image quality can be beneficial.

Keywords: CT scan, exposure parameters, radiation dose.

ME_14

Knowledge and Awareness of Breast Cancer and Mammography among Women in Klang, Selangor

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Abstract

Breast cancer (BC) is considered as one of the most common cancers among women and almost 2.1 million women are diagnosed with it each year around the world. The high mortality rate by breast cancer is mainly because of the late diagnosis of breast cancer which is because of the lack of awareness and knowledge about breast cancer itself and its screening methods among women. The gradually increasing mortality rate can be decreased by early detection of breast cancer. A validated questionnaire was adopted from a similar study that was done in Shah Alam, Selangor. The questionnaire consists of three sections namely sociodemographic status, knowledge about breast cancer and awareness of mammography. Independent T-test and One-way ANOVA test was applied to compare breast cancer knowledge scores across the socio-demographic variables. Pearson Chi-Square test was used to compare for the relationship between mammography awareness and socio-demographic characteristics. Most of the respondents (84.1%) stated that breast cancer is the most common cancer in Malaysia. In terms of risk factors, the majority (96.2%) of the respondents stated that genetic and family history is a risk of breast cancer while only 3.8% of them did not. 15 respondents received knowledge scores of which are less than 8 (very poor), 46 respondents have obtained scores from 8 to 11 (poor), 56 respondents have obtained scores from 12 to 16 (moderate) and 15 respondents have obtained scores from 17 to 20 (good). None of the respondents obtained scores of more than 20 (very good). This study shows that the respondents have very poor to moderate level of breast cancer knowledge. Mammography awareness was acceptable among the respondents as more than half of them knew about it.

Keywords: breast cancer, mammography, knowledge scores

ME_15

Development and Validation Questionniare for Assesment of Electromagnetic Radiation (EMR) Knowledge, Attitude and Practice (KAP) Among Unisza Students

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Abstract

The study was aimed to produce a finding about the validity and reliability test of the questionnaire which cover electromagnetic radiation topics. A survey was carried out among UniSZA students which involved 231 respondents from 10 faculties which covered two different campuses. The development of the questionnaire includes 4 domains which were socio-demographic details, domain of knowledge, attitude and also practice towards electromagnetic radiation. The validity and reliability test of the questionnaire was tested by Principal Component Analysis (PCA) and Cronbach's Alpha test respectively using the IBM SPSS version 20. For validity test, the variables of the questionnaire in each domains were extracted by the Principal Component Analysis extraction with varimax rotation into certain components. Validity test was interpreted first by the Kaiser-Meyer-Olkin Test and also Barlett's Test. These two test provide the minimum recommendation to proceed with the factor analysis. Meanwhile for reliability test, each component in each domain that were suggested by Principal Component Analysis will undergo Cronbach alpha test in order to test its internal consistency of the components. The findings of this study only produced 9 variables out of thirty variables that were tested by validity and reliability test. This study enable further research pertaining to the knowledge, attitude and practice of electromagnetic radiation among UniSZA students. This study only produce little variables from the total of thirty variables, thus to ensure more variables are valid, the questionnaire need to be revised and data collection need to be collected again.

ME_16

Computed Tomography Dose Estimation using Dose Length Product Conversion Coefficients in Paediatric Patients from University Malaya Medical Centre

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Abstract

The increasing use of computed tomography (CT) procedures provides a greater risk for paediatrics in developing radiation-induced cancer than adults. Therefore, a feasible method is required to quantify the received radiation dose. This study aims to estimate the effective dose (ED-estimated) received from CT Brain among paediatric patient of four age groups using published age-and-region specific dose length products (DLP) as ED conversion coefficients. A retrospective study was conducted over 2 months at the University of Malaya Medical Centre. Paediatric patients of four age groups: 0, 1, 5, and 10 years old who went through CT Brain scan was selected for this study. The DLP data that was obtained from the CT console was multiplied with age and region-specific conversion coefficient to estimate the ED. Over the 2 months of the study, there were numerous data of paediatric patients who went through CT Brain scan in the past 3 years from the date of 16 February 2020 that were kept by the hospital in their system. A significant difference of median ED was observed between the paediatric patients of age groups 0 and 1, age groups 0 and 5 and age groups 0 and 10. However, there was no significant median ED difference observed between the paediatric patients of age groups 1 and 5, age groups 1 and 10 and age groups 5 and 10. An inverse relationship was observed between the age and effective dose of paediatric patients who went through CT Brain.

Keywords: Computed Tomography (CT), Effective Dose (ED), CT Brain, age and region-specific conversion coefficient

ME_17

The Effect of Tube kVp Values and Anode/Filter Types on Image Quality in Mammography

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Abstract

The number of women all over the world diagnosed with breast cancer is increasing each year. Mammography is the best equipment for early breast cancer detection until a cure for this disease is found. There are only small differences in attenuation of the various breast soft tissue structures. Therefore, a unique imaging technique should be applied in mammography to increase the radiologist's ability to highlight abnormalities and classify lesions. Poor quality images reduce the detection rate of early breast cancer and the patient's chances of survival. This experiment was carried out to investigate how different tube kVp values and anode/filter types affect the image quality in mammography. Two different digital radiography (DR) systems of mammography were used. Firstly, computed radiography (CR) mammogram system had been operated with Molybdenum (Mo) as both anode and filter to image the RMI 156 phantom replacing the human breast. Secondly, direct digital mammography (DDM) with Tungsten (W) as the anode, Rhodium (Rh) and Silver (Ag) as filters were used. The phantom had been exposed using anode/filter combinations of Mo/Mo, W/Rh, and W/Ag, at the different tube kVp values of 24, 26, 28, 30 and 32 kV. A radiographer has evaluated the images by counting the number of appeared test objects. Low tube kVp values and W/Rh anode/filter gave the best image quality in mammography as they increase the visibility of image details.

Keywords: Mammography, tube kVp values, anode/filter, image quality.

ME_18

The Effect of Source-To-Image Distance (SID) on Entrance Surface Dose (ESD) and Image Quality in Posteroanterior (PA) Chest X-Ray – A Phantom Study

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Abstract

Chest X-ray still has important role in detecting pathology even though there are advance technologies of X-ray machine in producing 3D images such as Computed Tomography (CT) and Magnetic Resonance Imaging (MRI). In this study, the source-to-image distance (SID) was manipulated to observe the effects of SID on patient dose and image quality. Inverse square law theory stated that if the distance of an object from the source increases, the x-ray beam intensity decreases, thus the photons reach the image receptor (IR) decreases. The experiment was conducted using a chest phantom in the X-ray room with a computed radiography (CR) system. The phantom was positioned in posteroanterior (PA) chest X-ray with the thermoluminescent dosimeters (TLDs) were placed at the center of the entrance surface of a phantom. The entrance surface dose (ESD) of the phantom was calculated and the image quality of the images for each of SID was assessed by five radiographers using 5-points Likert scale. The ESD values from 100 cm to 180 cm are 0.335 mGy, 0.217 mGy, 0.177 mGy, 0.150 mGy and 0.152 mGy respectively. The results showed that there is a significant changes in ESD when the SID increases from 100 cm to 180 cm. The total scores of image quality assessment of chest X-ray a statistically significance difference when the SID increases with percentage for 100 cm to 180 cm are 15.45%, 15.95%, 16.78%, 26.08% and 25.75% respectively. In conclusion, when SID is increasing, the ESD is decreased, and the image quality was improving.

Keywords: source-to-image distance (SID), entrance surface dose (ESD), image quality

ME_19

Repeat Rate Analysis of Lower Limb Images for Digital Radiography in General Radiography at Pantai Klang Hospital Selangor

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Abstract

The study was carried out to analyse the repeat rate of routine lower limb projections in direct digital radiography (DR) from general radiology department of Pantai Klang Hospital. Data were collected from the Picture Archiving and Communication System (PACS) system for patient that have been exposed under projection of routine lower limb regardless age, gender, races, and outpatient or inpatient. Assessing the repeat rate is crucial to reduce unnecessary dose to the patient by identifying the major cause for repeating the x-rays exposure to the patient and apply corrective measures. 26 months retrospective repeat rate data is acquired from PACS to fulfil the sample size of this study. Data are taken from Hospital Pantai Klang PACS under the supervision of head of the department. Data of the repeat images received by categories which of the reason the images being rejected. In the system, the rejected radiograph can be categorized into six categories which are incorrect positioning, incorrect collimation, patient movement, incorrect exposure factors, artefact, and other reasons. Total image acquired for 26 months are 13616 for routine lower limb projections. 120 is the total of image retake due to various reasons. Knee projections (48/4600) is the highest repeat exposure compared from other categories with repeat rate of 1.04%. Tibula-fibula projections (5/875) has the lowest repeat rate which is of 0.57%. Incorrect positioning is the major cause of the repeat exposure with total of 44 images from 120 images in this study.

Keywords: Repeat Rate (RR), Lower Limb (LL), Direct Digital Radiography (DDR), Picture Archiving and Communication System (PACS)

ME_20

Effect of Beam Collimation on Patient Dose and Scattered Radiation during Lumbar X—Ray: A Phantom Study

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Abstract

Lumbar plain radiography has been one of the most commonly requested procedures in spine evaluation especially for post-operative assessment of lumbar and in ankylosing spondylosis. However, despite of using tight collimation, patient dose resulting from repetitive spinal imaging is a critical issue in determining health consequences. Thus, this study aimed to determine the effect of collimation on patient dose and scattered radiation during lumbar projection. Anteroposterior (AP) and lateral lumbar projections were done using half-body phantom with three different sizes of beam collimation; minimum (345.6 cm^2), medium (520.8 cm^2) and maximum (728cm^2). Thermo-luminescent dosimeter (TLD) and survey meter were used to measure radiation dose to the phantom and scattered dose respectively. Radiation dose to the liver, colon and ovaries were significantly increased upon increasing of beam collimation size in AP projection ($p < 0.001$). The same correlation between radiation dose and beam collimation size was also shown on lateral lumbar projection ($p < 0.001$), except for radiation dose to the colon ($p = 0.662$). Effective dose and scattered radiation in both AP and lateral lumbar projections were also increased as beam collimation size increased ($p < 0.001$). In conclusion, radiation dose to organ (except for colon), effective dose and scattered radiation were directly correlated to the size of beam collimation in both AP and lateral lumbar projections.

Keywords: Beam Collimation, Radiation Dose, Scattered Radiation, Lumbar Radiography

ME_21

A Comparative Study on Shielding Properties of Protective Window Materials by Using Egs5 Code

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Abstract

For an X-ray room, there is a special window for radiation workers to monitor the patient during an irradiation procedure. Lead glass commonly used as protective window materials for diagnostic X-rays even it is known for its toxicity due to the lead oxide in the air which could be inhaled either during manufacturing or recycled process. Monte Carlo simulation (EGS5 code) was used to study several other types of available protective windows for its radiation shielding efficiency. In this study, the practicability of acrylic glass, plate glass and Pyrex glass systems with respect to lead glass were studied for protective window materials. The photon attenuation coefficients (μ), the percentage of transmitted and reflected photon energy spectra and half-value layer (HVL) were investigated by using simulation. Three photon source energies of 59.5 keV, 150 keV, and X-ray 150 kVp were calculated via EGS5 code system to study the capability of these four glass systems as low energy photons radiation shielding materials. The types of photon interactions involved in this study were photoelectric absorption, Compton scattering and Rayleigh scattering. The results from this study showed that the EGS5 Code System utilizes in this work might be used as a better alternative to laboratory work to simulate and calculate the photon attenuation characteristics of other glass materials.

Keywords: Monte Carlo, attenuation, X-ray, photon spectra, protective window

ME_22

A Retrospective Analysis Of Lacunar Infarct Cases Admitted To Ummc According To Age And Gender

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Abstract

This study discusses about dependability of gender differences in ischemic stroke epidemiology on patient age as the influence of gender on stroke risk and outcome changes across the lifespan. A retrospective analysis of lacunar stroke incidence influenced by age and gender among University Malaya Medical Centre (UMMC) patients is carried out. A total of 94 cases from January 2009 until December 2020 is analyzed. Data is retrieved from UMMC collected database via picture archiving and communication system (PACS). Patients were selected based on inclusion and exclusion criteria. The inclusion criteria include a clinical diagnosis of lacunar stroke, age categories of middle age (40 – 59 years old) and older age (60 years and above), as well as undergo CT examination. The exclusion criterion is other than lacunar stroke patients. For example, hemorrhagic stroke patients. Analyzation of data is conducted by using SPSS software. The analyzation includes cross tabulation of categorical data (Crosstab) and statistical test (Independent t-test). From cross tabulation of data, men (58.51%) are found to have more ischemic strokes in the general population. Furthermore, both middle age (13.83%) and older age among male patient (44.68%) shows higher percentage of lacunar incidence (ischemic stroke) compared to female patients. Moreover, old age patients (76.60%) for both gender shows higher percentage of lacunar incidence compared to middle age patients (23.30%). Meanwhile the independent t-test result demonstrated that the mean age of female patients (67.79) diagnosed with lacunar stroke is not statistically different from the mean age of male patients (68.47).

Scope: Featuring New Trends of Research in Nutrition and Dietetics

NE_1

Household food insecurity and it's determinant among pregnant women attending antenatal care in Selangor, Malaysia

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Abstract

Food insecurity and hunger is a public health problem. Food insecurity has adverse effects on physical, psychological, and social health. The food insecurity phenomenon is still exist in Malaysian households, where recently almost 25.0% of Malaysian household is food insecure. . The problem of food insecurity is prominent among women compared to men especially among pregnant women. Pregnant women are considered vulnerable population and food insecurity lead to poor health and nutritional outcomes. To date, there is no available study of food insecurity among pregnant women in Selangor. This study aimed to determine the proportion of household food insecurity and its associated factors among pregnant women attending antenatal care in health clinics at Selangor. A cross-sectional study was conducted between January to March 2020; where all pregnant women with first trimester booking ≤ 12 weeks that fulfilled the inclusion and exclusion criteria were included in the study. A stratified multistage probability sample was performed. The household food security status by using Malay version U.S Household Food Security Survey Module, sociodemographic and obstetric characteristics, and diet diversity questionnaires were utilized. A total of 475 respondent were included in the study. There were 335 (70.5%) pregnant women with household food security, 55 (11.6%) with marginal food security, 70 (14.7%) with low food security and 15 (3.2%) with very low food security. Maternal unemployment status (AOR 2.249, 95% CI: 1.433,3.529, p=<0.0001); total monthly household income of RM 4930 - RM 10,509 (AOR 3.078, 95% CI:1.034,9.163, p = 0.0423) and total monthly household income less RM 4930 (AOR 3.709, 95%CI:1.234,11.154, p=0.020); and maternal low education level (AOR 2.610, 95% CI: 1.685,4.044, p<0.001) were significantly associated with household food insecurity. In conclusion, it is important for the stakeholders to identify the determinants of household food insecurity among pregnant women to tailor the timely intervention for better maternal and fetal outcomes.

Keywords: household food insecurity, pregnant, Selangor

NE_2

Association between Overweight and Obesity, and Iron Deficiency: A Review of Literature

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Abstract

Prevalence of overweight and obesity have elevated worldwide at an epidemic rate. They are the key risk factors for numerous chronic diseases, including cardiovascular disease, diabetes, and certain types of cancer. Iron is a crucial nutrient for optimal physical and cognitive development. Iron deficiency is known as the most widespread single micronutrient deficiency at the global level. Untreated iron deficiency can cause iron deficiency anemia, a serious health problem that appears in the form of tiredness, reduced life productivity and poor maternal health among affected individuals, especially women. In the last few decades, many studies have described a possible relationship between overweight and obesity, and iron deficiency in both children and adults caused by an elevated chronic inflammation and a release of small peptide hepatic hormone called hepcidin. Serum hepcidin plays a central role in the regulation of body iron by acting as a negative regulator of intestinal iron absorption. Significant body weight loss in overweight or obese individuals could cause a decrease in chronic inflammation and serum hepcidin level, which leads to an increase in iron absorption and a possible improvement in iron status. However, solid evidence from robust well-controlled randomized clinical trials are required to confirm this effect.

Keywords: overweight, obesity, iron deficiency, anemia, chronic inflammation, hepcidin

NE_3

Exploring Tourist Perceived Risk Factors and Its Impacts on Willingness -To -Try Unfamiliar Local Food in Redang and Perhentian Island

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Abstract

Tourists are showing an increasing interest in the local food of destinations. However, recent COVID-19 pandemic may dramatically heighten risk factors particularly with local food. Tourists may perceive unfamiliar foods as strange or even dangerous, which could affect overall tourism experience. The perception of food is being differently viewed by tourists that increased their risk perception and limit their willingness-to-try local food. To date, tourist risk perception of unfamiliar local food during post-pandemic especially in island destination remains unexplored. Henceforth, the aim of this study was to explore the risk factors of local food at island setting and impact on willingness-to-try. Using a qualitative approach, a total of nine participants (2 Male, 7 Female) of Western tourists were recruited. Semi- structured interviews were carried out between July and August 2020 during the Recovery Movement Control Order (RMCO) period, focusing in restaurant settings at Redang and Perhentian Island, Terengganu. The data was analysed using thematic analysis. A total of eleven risk factors themes emerged, which are health and food safety risk, infectious disease, taste value, intrinsic quality, Physchological factors, Government risk management, food image, emotional value, financial value, healthcare issues, and personality traits were found to affect tourist's willingness to try and consumption on unfamiliar local food. The findings may help restaurateurs, resort operators and stakeholders at islands destination on key areas to improvise in mitigating local food risk factors.

Keywords: Risk perception, unfamiliar local food, dining behaviour, global pandemic, Willingness-to-try

NE_4

Food Safety Culture Factors That Influence Attitude and Practices of Food Handlers At Orphanages in Terengganu

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Abstract

Recently, about one in every ten people each year around the world were sickened by foodborne disease. Mostly, foodborne illness occurs due to the consumption of unsafe food. Most of the food handlers in orphanages are lack of educational background and lack of exposure to the knowledge of food safety. Therefore, this qualitative research purpose was to study the food safety culture factors that influence the attitude and practices of food handlers during the operation of the food premise at orphanages in Terengganu. Besides, a conceptual, theoretical model also has been developed in this research. Semi structure interview has been conducted in three orphanages with a total of food handlers (n=20). The thematic analysis was used to reveal the factors of food safety culture that influences the attitude and practices of local food handlers in Terengganu orphanages. Findings illustrate that inconveniency issues, challenge to change new attitude and procedures as well as assertive towards new knowledge were the themes that have been found in this study. Thus, a conceptual, theoretical model also resulted that, most of the food handlers still firm with their attitudes and practices despite training has been given to them.

***Keywords*:** Food safety culture, Food handlers, Orphanages, Foodborne disease

NE_5

Consumers' Attitude, consumers' Satisfaction, consumers' Awareness of Food Safety And Consumers' Purchase Intention of Food Ordered Through Online Food Delivery Using Mobile Application In Penang Island

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Abstract

Online food delivery is used worldwide and getting so popular nowadays where people can find different type of food online then purchase it and then the food is delivered to their house, office or any place available. Food delivery application is an application that is used by many people by purchasing food through online food delivery and then received the food at their house or workplace. It might become one of the concerns in Penang since more and more people used the food delivery apps to order food instead of buying the food directly from the food stores or premises. So this research was done to give the owner of food outlets to develop new strategies to increases their offline and online customer plus to raise awareness of food safety to the consumer who used food delivery apps. The main objectives of this study is to determine the consumers' attitude, consumers' satisfaction and consumers' awareness of food safety and consumers' purchase intention of food through food delivery apps in Penang Island. This study conducted in Penang Island. The data collected through the survey completed by 160 respondents. Data obtained analyzed using SPSS. Next, the relationship between consumers' satisfaction and consumers' awareness of food safety it shows a strong positive relationship as the r-value is r=0.708. There is a significant difference between monthly income and consumers' purchase intention with (p=0.005). There is also a significant difference between marital status and consumers' purchase intention of food through food delivery apps which is (p=0.023), and there is a significant difference between age group and purchase intention since the p-value is (p= 0.001). Lastly, there is also a significant difference between occupation with consumers' attitude and occupation with consumers' awareness of food safety with p-value (p=0.025) and (p=0.032), respectively.

Keywords: Food Delivery; Delivery Apps; Attitude; Satisfaction; Purchase intention

NE_6

Nutritional Status and Functional Status Towards Risk Of Sarcopenia Among Elderly: A Scoping Review

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Abstract

Muscle impairment is a common condition in elderly and a powerful risk factor for disability and mortality. Therefore, this study presents available evidence on the prevalence and its association with nutritional and functional status. An electronic database search on academic journals published from 2015 to 2020 was conducted using PubMed, Google Scholar and Medscape. A total of 20 studies with 36,739 participants and one study involving 506 participants from Malaysia, were identified and included in this review. Age range in these studies was 55 years and older. The overall prevalence of sarcopenia is in a range of 5.4% to 80.1%. To be specific, the sarcopenia prevalence is shown to be in the range of 6.8% to 80.1% among Asian populations, and 5.4% to 41.4% among non-Asian population. Prevalence of sarcopenia was reported to be the highest in health care center (hospital and clinic) (5.4% to 80.1%), followed by elderly living in nursing homes (28.8% to 41.4%) and community-dwelling elders (6.8% to 30%). Most of the studies reported that a low body mass index (<18.5 kg/m^2) was significantly associated with sarcopenia and a positive association was found between inadequate protein intake (<0.8 g/kg BW/day) and sarcopenia. However, sarcopenia was not associated with functional status (ADL). It can be concluded that sarcopenia is highly prevalent in older adults. Studies showed that elderly with a low BMI and insufficient protein intake have a greater risk of developing sarcopenia. In addition, decline in functional status was an independent indicator for the presence of sarcopenia.

Keywords: Sarcopenia, nutritional status, functional status

NE_7

Analysis Of The Effect Of Nutritional Education Through Animated Video Media On Morning Breakfast Behavior In Primary School Students Of Alue Buloh Nagan Raya District

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Abstract

Breakfast for school-age children is very important, because breakfast is the child's initial nutritional intake to start learning activities that really require good concentration. Good breakfast behavior in children can be enhanced with effective information stimuli according to their age. The purpose of this study was to see the effect of nutrition education through animated video media on breakfast behavior in elementary school children. The research design used was Quasy Experiment, with a pre-test and post-test design with one group with a total sample size of 50 students. The sampling technique was purposive sampling. Interventions were carried out 6 times with a span of 2 months. The data analysis used was univariate analysis and bivariate analysis using the Dependent t test. The results showed that there was an effect of nutrition education using animated video media on student knowledge with a value of p (sig) = 0.000, there was an effect of nutrition education using animated video media on student attitudes, there was an effect of nutrition education using animated video media on student actions.

Keywords: Education, Nutrition, Video Animation, Breakfast

NE_8

Physical Activity, Eating Habits and Body Mass Index (BMI) Among Dietetics Students in Universiti Sultan Zainal Abidin

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Abstract

University life is a critical period of change in eating habits. Weight gain is a serious problem among youths who are experiencing a change in university life. Universities are potentially important settings for promotion of healthy diet and weight management practice for healthy future. Present study aimed to assess physical activity and eating habits and their association with BMI in dietetics students at UniSZA. A total of 126 students were involved in answering a set of survey questions as well as weight and height measurements. Data were analysed using SPSS statistical software 22.0, Chi-square test used for testing significance of p value < 0.05. In this study, 9.6% of dietetic students were obese and 25.6% were overweight. Breakfast was the most frequently skipped meal (71.4%) with the main reason they skipped their meal time is time management followed by busyness in attending lectures and doing readings. Majority of students (73%) will take a snack when they skipped their meal time. Most of the students consume fruits sometimes (55.6%) and 37.3% of them also consume vegetables sometimes. Most of the students (37.3%) consumes fast food one to three times per month. More than half of the students (59.5%) prefer to eat with friends. Majority of students have moderate physical activity (42.9%). Overall, this study showed prevalence of obese and overweight among dietetics students of UniSZA is 35.2%. However, this study also did not show association between physical activity, eating habits and BMI (p-value > 0.05). In a nutshell, health programs are necessary to create awareness of nutrition and a healthy lifestyle among youth as the arising of obesity incidence among youth is worrying.

Keywords: physical activity, eating habits, BMI, university students

NE_9

An Insight into Physical Activity Level among Pregnant Women in Terengganu: A Pilot Study

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Abstract

Regular physical activity during pregnancy gives various health benefits for mothers. However, due to lack of exposure regarding the benefits of physical activity, a taboo among expecting mothers exist. The aims of this study are to determine the reliability of the Malay version of Pregnancy Physical Activity Questionnaires (PPAQ) and physical activity level of pregnant women in Terengganu. This cross-sectional study used self-administered questionnaires consist of socio-demographic characteristics and Malay version of PPAQ (PPAQ-Malay). The English version of PPAQ was translated to Malay by two linguistic expert and back translated to English for consistency. The data were analysed by using IBM SPSS version 23. A total of 23 pregnant women were recruited from two health clinics in Terengganu, aged between 22 to 41 years old. For the reliability test, PPAQ-Malay yielded a Cronbach's Alpha of 0.733, and the Intraclass Correlation Coefficient (ICC) value range from 0.537 to 0.869, indicating an acceptable internal consistency. Most of the participants were in their third trimester (60.9%, n=14), while 30.3% were in second trimester (n=7). Majority of the pregnant women participated in light-intensity activities (mean 14.1 ± 10.8 MET-hr/week, 1.5-3.0 METs) in the form of household care giving (75.6 ± 63.9 MET-hr/week) and occupational type (70.2 ± 112.6 MET-hr/week). In conclusion, PPAQ-Malay can be accepted as a reliable tool to evaluate physical activity of pregnant women in Terengganu. Sufficient level of physical activity is needed to prevent pregnancy-related-complication. The taboo of being physically active during pregnancy should be corrected by revealing the benefits of physical activity.

Keywords: Physical Activity, Pregnant Women, PPAQ-Malay, Terengganu

NE_11

Komuniti Sihat Pembina Negara (KOSPEN) Weight Management Program: Yay or nay?

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Abstract

The *Komuniti Sihat Pembina Negara* (KOSPEN) is a community empowerment program in preventing non-communicable diseases. Its Weight Management Program was introduced in 2016, yet little is known about its outcome. The objectives of this study were to determine the proportion of successful weight loss (defined as weight loss >5% from baseline), to compare changes in weight, blood pressure and blood glucose before and after the six-months program and to determine the association between weight loss with blood pressure and blood glucose among its female participants in Terengganu. A cross sectional study was conducted using secondary data from participants' logbook and the 2017 KOSPEN Weight Management Program database. Among the 123 participants, 85.4% lost weight, 3.3% maintained their weight while 11.4% gained weight. The mean weight loss was 3.62 kg (3.46) with the maximum weight loss of 21.8 kg. One-third of the women (n=42) had successful weight loss. At six months post program, the mean weight reduced by 2.93 kg (2.27-3.60, p<0.001), systolic blood pressure (SBP) reduced by 1.44 mmHg (-0.54-3.42, p=0.153), diastolic blood pressure (DBP) reduced by 2.04 mmHg (0.71-3.37, p=0.003) and blood glucose reduced by 0.25 mmol/L (0.09-0.42, p=0.003). There were no significant associations between weight loss and SBP (p=0.894), weight loss and DBP (p=0.518) and weight loss and blood glucose (p=0.524). The KOSPEN Weight Management Program was successful in reducing weight, blood pressure and blood glucose. It is recommended to extend this initiative to other localities so that more people will benefit from this program.

Keywords: Obesity, overweight, weight loss, successful weight loss, community-based intervention

NE_12

Lipid Profiles and Lifestyle Habits among Stroke Survivors in East Coast Region of Peninsular Malaysia

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Abstract

Despite the benefits of lowering lipid profiles in reducing risk of recurrent stroke, there is paucity of data on lipid profiles and lifestyle habits among stroke survivors. This study aimed to examine the lipid goals attainment and lifestyle habits among patients with history of stroke. Factors associated with suboptimal lipid profiles were also determined. A cross-sectional study was conducted in three public hospitals in East Coast region of Peninsular Malaysia. Results of fasting serum lipid profiles were traced retrospectively within six months from the time of survey. Information on socio-demographic characteristics, clinical profiles, dietary adherence and physical activity levels were acquired by survey. Binary logistic regression analyses were carried out. From a total of 104 stroke patients, majority of them were non-elderly with mean age at 57.7 and were presented with ischemic stroke. Three quarter of the patients achieved the triglyceride and total cholesterol goals. Only half and 22.1% of them achieved the high-density lipoprotein cholesterol and low-density lipoprotein cholesterol (LDL-C) (<1.8mmol/L) goals, respectively. Patients with longer duration of stroke (AOR 3.66, 95% CI: 1.05, 12.80), poor controlled of diastolic blood pressure (AOR 9.20, 95% CI: 3.12, 27.11), chronic kidney disease (AOR 3.30, 95% CI: 1.05, 10.34), abdominal obesity (AOR 3.14, 95% CI: 1.20, 8.21), excessive intake of saturated fatty acids (AOR 2.85, 95% CI: 1.02, 7.93), and active smokers (AOR 6.34, 95% CI: 1.34, 30.03) were significantly associated with suboptimal lipid profiles. Despite higher risk of recurrent stroke, many stroke survivors continue to have suboptimal lipid profiles particularly in the LDL-C levels and poor lifestyle habits. Increased efforts for prevention strategies must be made in order to optimise lipid profiles among these patients.

Keywords: Stroke; Lipid profiles; Lifestyle habits; Cross-sectional study; Malaysia

NE_13

Screen In Sleep Environment And Weight Status Among University Students

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Abstract

Obesity negatively affects nearly all physiological functions of the body and has become a major public health threat. Excessive time spent on watching any electronic devices has been related to a heightened risk of obesity by displacing time for physical activity. On top of that, exposure to screen in the sleep environment has been shown to impact sleep quality and weight status among early adults. This study aims to investigate the relationship between screen in the sleep environment and weight status among university students. A cross-sectional study was carried out among 216 undergraduate students aged 19 to 25 years in a public university in East Coast of Peninsular Malaysia. Sociodemographic characteristics, anthropometric measurements (weight, height, body mass index), and physical activity were measured. The exposure to screen in the sleep environment was determined by how often participants used electronic devices one hour before sleep. The relationship between usage of screen in sleep environment and body mass index were tested using simple and multiple linear regression. The results of the study shows that there were 75% of the study participants that used electronic device one hour before sleep daily. For simple linear regression between BMI and screen in the sleep environment, the variable was not statistically significant in predicting weight status (BMI), F (1, 214) = 0.342, p >.05, R^2 = 0.002. Another multiple regression was also conducted to predict the relationship between weight status and screen in the sleep environment independent of physical activity. Based on the result, these variables were not statistically significant to determine weight status among UniSZA students, F (2, 213) = .209, p > .05, R^2 = .002. As a conclusion, the weight status among UniSZA students was not affected by screen in sleep environment. Longitudinal research is needed to study the relationship between screen in the sleep environment and weight status.

Keywords: screen in sleep environment, weight status, physical activity

NE_14

Association Between Pubertal Status and Body Fat Percentage Among Malay Adolescents in Kuala Nerus, Terengganu.

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Abstract

Body composition is defined as the proportion of fat (FM) and fat-free mass (FFM) in our body. It is a main component of health in both individuals and populations. The increasing prevalence of obesity among adolescents marked the importance of body fat measurement and its associated factors. Therefore, the aim of this study is to measure the body fat percentage (BF%) by using bioelectrical impedance analysis (BIA) and to observe its association with pubertal status among Malay adolescents in Kuala Nerus, Terengganu. This cross-sectional study was conducted focusing on adolescents aged 10 to 16 years old. Anthropometric of weight, height, and waist circumference were measured and body composition was assessed by Bodystat Quadscan 4000 through BIA techniques. Questionnaires consist of socio-demographic characteristics and Tanner staging for determination of pubertal status. A total of 310 students participated in this study (female, n=165, male n=145). The percentage of overweight and obese among adolescents in Kuala Nerus was 12.9% and 10.6%, respectively. There was a significant difference on BF% between gender ($p<0.001$), and girls in pubertal stage had higher BF% than boys (28.05±7.31 % vs 17.20±8.43 %). There was a significant difference on BF% between pubertal status ($p<0.05$). However, there were no significant association between BF% and pubertal status. BF% was different among gender and pubertal status. Thus, it is important to include pubertal status as factor in the measurement of BF% as it differs among individuals and genders.

Keywords: Obesity, body fat percentage, adolescent, pubertal status

NE_15

Physicochemical Properties And Glycemic Index Of Processed Honeybee Honey And Stingless Bee Honey

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Abstract

One major factor in chronic disease is excessive sugar consumption and high intake of glycaemic index (GI) food. Honey is a natural sweetener with the potential to address high sugar intake. The present study was carried out to compare the GI and glycaemic load (GL) of processed stingless bee honey and processed honeybee honey in addition to their physicochemical properties. The physicochemical analysis, including moisture, sugars content, pH and free acidity, electrical conductivity (EC) and ash content, following the International Honey Commission standard procedures. The moisture of processed stingless bee honey and processed honeybee honey were nearly the same, because the honeys had been processed to reduce their moisture until 20.00%. Processed honeybee honey had higher total sugars content (89.18%) than processed stingless bee honey (62.38%). In terms of pH and free acidity, there were significant differences between processed stingless bee honey and processed honeybee honey ($p<0.05$) (3.07 vs 3.27), (83.17 meq/kg vs 111.67 meq/kg). The study found no significant differences for electrical conductivity (EC) and ash between these two honeys ($p>0.05$). For the GI determination, subjects were given honey containing 25 g of available carbohydrate in 250 ml of water. Later, their blood glucose levels were taken at 0, 30, 60, 90 and 120 minutes. The blood glucose responses were based on incremental area under the curve, IAUC, and compared to that of 25 g available carbohydrate from pure glucose. The results shows a significant difference ($p<0.05$) in GI between processed stingless bee honey (91) and processed honeybee honey (67). While in terms of GL, no significant difference was documented ($p>0.05$), bu there was a significant difference between processed honeys and glucose ($p<0.05$). Thus, these processed honeys can be classified as low GL foods. In conclusion, this study shows that processed honeys can be consumed in moderate amounts following the suggested carbohydrate allowance of not more than 50 grams per serving.

***Keywords**:* Honey; Physicochemical Properties; Processing; Glycemic Index (GI); Sensory Analysis.

NE_16

Association between Body Fat Percentage and Level of Physical Activity Among Adolescents in Kuala Nerus, Terengganu

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Abstract

Lack of physical activity among adolescents is one of the factor which lead to the accumulation of body fat and increase the prevalence of obesity among Malaysian population. Therefore this study aim to determine the association betwen body fat percentage and physical activity level among adolescents in Kuala Nerus, Terengganu. This cross-sectional study involved 300 participants consists of 44.7% male and 55.3% female aged between 10 to 16 years old. Anthropometric measurements included body weight, height and waist circumference. Body fat percentage (%BF) was assessed using bioelectrical impedance analysis (BIA). Physical activity was assessed by physical activity questionnaire (PAQ-C) and pedometers in a subsample (n = 50). The result shows that the mean body fat percentage and BMI of the participants were 23.02 (9.41%) and 20.03 ((4.77 kg/m^2, respectively. Mean PAQ-C score and pedometer steps count were 1.9(0.42) and 6079(1878), relatively. Male has higher PA level compared to female in their daily life based on PAQ-C score (2.07(0.41) vs 1.79(0.38)) and pedometer steps count (6196(2363 vs 5992(1455). PAQ-C score $p<0.05$) and pedometer step counts($p<0.05$) were negatively associated with %BF however there is no significant association between screen time and %BF. As a conclusion, I believe that the problems of obesity can be solved by providing strategies to promote active living among children in Malaysia not only focus on increasing physical activity but also emphasise reduction in sedentary behaviours.

Keywords: Body fat; physical activity; screen time; sedentary behaviour; adolescents, Terengganu

NE_18

Relationship of Knowledge and Fluid Consumption Strategy on the Hydration Level after Exercise in Teenage Soccer Athletes

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Abstract

Young soccer athletes, as teenagers, are at risk of dehydration during exercise. Athletes' knowledge of hydration is a key factor in fluid consumption behaviour or strategies and has an impact on hydration levels. This study aims to determine the relationship between the level of knowledge about hydration and fluid consumption strategies with the level of hydration. The study design was an analytical observational with a cross sectional approach. The samples were 53 students of the Football School aged 13-17 years. The data collected were knowledge level about hydration, fluid consumption strategy, % weight loss, urine specific gravity, and nutritional status. Most of the athletes had normal nutritional status (85%). The chi-square result of the level of knowledge and strategy of fluid consumption showed p=0.146; knowledge level and% weight loss p=0.561; fluid consumption strategy and % weight loss p=0.950; strategy of fluid consumption and urine specific gravity p=0.805; fisher-exact test knowledge level and urine specific gravity p=510. The conclusion is that there is no relationship between the level of knowledge about hydration, fluid consumption strategy, and level of hydration. Based on this study, it is considered that nutritional education materials, especially hydration management, should be added to sports health materials and ensure athletes have carried out the appropriate fluid consumption strategy.

Keywords: athlete, knowledge, consumption, hydration

NE_19

Environmental and Behavioural Determinants of Weight Regain Among Overweight and Obese Adults Following a Weight Loss Program in UniSZA

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Abstract

Obesity is a major global health problem. It predisposes individuals to several comorbidities that can affect life expectancy. Intervention based on lifestyle modifications such as weight loss program and physical activity are the integral components in the management of obesity. However, although weight loss can be achieved through increased physical activity or dietary modification, weight regain or rebound is likely to occur over the long term. This study aimed to determine the association between behavioural and environmental factors namely, dietary habit, social support, emotional state, chronotype and weight concern with weight regain in individuals post weight loss program among overweight and obese staff of Universiti Sultan Zainal Abidin. A total of 58 overweight and obese subjects who participated in a weight loss program were enrolled in this study. The subjects were interviewed using a set of questionnaires consisting of sociodemographic data, Eating Disorder Examination and Munich ChronoType questionnaires. Subjects post – program weight was measured. Data were analysed using Multiple Linear Regression. Mean age of subjects was 36.55 $\pm$ 6.20 years where 60.3% of them were female. Ninety percent (n=52) of the subjects regained back the weight they lost after the program with mean weight regained was 2.1 kg in six weeks' time. There is no significant linear relationship between chronotype, social support, weight concern, dietary habit and emotional state and weight regain ($p > 0.05$). Only 6.5% of the variation in dependent variables were explained by independent variables. Prospective studies with larger sample size required to determine actual cause of weight regains among overweight and obese individuals following a weight loss program.

Keywords: Weight regain, environment, behaviour, obesity, overweight, weight loss program.

NE_20

Malnutrition and its Association with Socioeconomic Status among Elderly in Terengganu

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Abstract

Worldwide elderly population is rapidly increasing. This is posing many challenges in the global health system. Malnutrition in them is one of the major health problems associated with elderly. Socioeconomic status is a powerful determinant of health and may greatly influence their nutritional status. Hence, the present study was undertaken to assess the association between socioeconomic status and malnutrition among elderly. This cross-sectional study involved 330 elderly population from eight districts in Terengganu and was carried out over a period of four months. Data was collected form eligible elderly by using a questionnaire and Mini Nutritional Assessment (MNA) tool in interview sessions. Overall, 69.0% were between the age group of 60-69 years. 74.1% were females, 67.6% were currently married, 73.6% had low education, 70.0% were unemployed and 97.6% had a household income lower than RM4360. Less than 1% was found malnourished and 27.6% were at risk of malnutrition. There was an association between nutritional status of elderly with an increase in age and educational level. Although majority of the elderly were normally nourished, it is important to develop intervention to prevent malnutrition among older adults to prevent disease morbidity and increase quality of life.

Keywords: Elderly, Malnutrition, Nutritional Status, Socioeconomic Status, Mini Nutritional Assessment

NE_21

Association Between Dietary Intake and Academic Performance Among Primary Schoolchildren in Terengganu.

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Abstract

Good dietary intake has a beneficial impact not only on health but also cognitive which determining academic performance. However, there was limited study on association between dietary intake and academic performance among primary school children in Malaysia specifically in Terengganu. This aimed to determine the association between dietary intake and academic performance among primary schoolchildren in Terengganu. The dietary intake and sociodemographic data were obtained through questionnaire and the academic performance was evaluated by using the students' first and final examination scores. There was positive significant association between dietary intake and academic performance. Iron and calcium were highly associated with Science subject, whilst iron also significantly associated with Bahasa Malaysia I and II subjects. Moreover, vitamin C had positive association with Bahasa Malaysia I and II, and Science subjects. In conclusion, dietary intake does influence academic performance. High intake of iron, calcium and vitamin C have positive associations with academic performance. Foods rich with these micro-nutrients should be incorporated in healthy diet for the children to improve their performance in academic in schools.

Keywords: Dietary intake, academic performance, primary schoolchildren

NE_22

Association between Sociodemographic Characteristics and Dietary Intake, and Coronary Heart Disease in Terengganu

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Abstract

Coronary heart disease (CHD) is the leading cause of death in Malaysia in 2018. Dietary intake has its own role, either protecting or promoting the development of CHD. This study aimed to determine and compare dietary intake of CHD patient and patient at risk of CHD and associated factors of sociodemographic and dietary factors with CHD in Terengganu. The data collection is conducted by interviewing the patients using questionnaire that consist of sociodemographic items, anthropometric measurements and dietary intake. The dietary intake for the past one year is estimated using semi-quantitative food frequency questionnaire (FFQ). There were 68 patients with CHD and 68 patients at risk of CHD involved in this study. There were 67.6% of male suffered from CHD compared to women, 30.1%. The mean age of CHD patient was 52.7 (8.1) years old. There were significant differences found in intake of carbohydrate (p=0.001), protein (p=0.013), fat (p=0.027), monounsaturated fatty acid (p=0.020), polyunsaturated fatty acid (p=0.008), fibre (p=0.003), calcium (p=0.03), phosphorus (p=0.02), potassium (p=0.013), vitamin A (p=0.023), vitamin B1 (p=0.002) and vitamin B2 (p=0.008) between patient with CHD and patient at risk of CHD. Men had 3 times higher odds to have CHD compared to women (95% CI 1.542,7.920, p=0.003) and a person with family history of CHD had 4 times higher odds to have CHD (95% CI 2.037, 12.046, p<0.001). In conclusion, there are association between male gander, family history, household income and carbohydrate with CHD. Therefore, a healthy balanced diet is crucial to prevent the pathogenesis of CHD.

Keywords: Sociodemographic; Dietary intake; Coronary heart disease, Food Frequency Questionnaire.

NE_23

Dietary Intake, Physical Activity Level And Body Weight Status Of 11 Years Old Children In Terengganu

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Abstract

Dietary intake and physical activity level are two important determinants of body weight status among children. This study aimed to assess the dietary intake, physical activity level and body weight status of schoolchildren in Terengganu. Previous studies shown the relationship between dietary intake and body weight status and physical activity level and body weight status among children. There is limited studies about the relationship between dietary intakes, physical activity level and body weight status in Malaysian children. However, majority evidences found in western countries especially in South America and United States (US) and few studies among Asian population but study conducted among adolescents and adults. There only measured dietary intake and lifestyle practices. Furthermore, there had studies in Terengganu about the body weight status but the studies conducted on adults not children. Using a cross-sectional study design, 338 schoolchildren participated in this study. Height, weight, and body mass index (BMI) were measured and recorded whilst data for socio-demographic, dietary intake and physical activity were collected using Food Frequency Questionnaire (FFQ) and Children Physical Activity Questionnaire (CPAQ), respectively. The results showed no significant difference between genders in dietary intake. The mean energy intake of schoolchildren was approximately 1765.1 kcal. For body weight status (BWS), there is significant mean difference between boys and girls in weight and BMI ($p>0.05$) ($p=0.03$) ($p=0.002$). Girls had significant lower BMI than boys. In comparison between boys and girls in physical activity level, girls significantly scored lower in physical activities compared to boys. 45.6% of students reported moderate PA, followed by low PA (31.7%) and high PA (22.8%). Relative to a high level of PA, a low level of PA showed no significant association with the risk of overweight/obesity in this study. The result showed that most of the students at low, moderate and high physical activity had normal body weight, which is 15.1%, 26.6% and 13.9%. A study conducted in Malaysia; there were no other significant differences between dietary intakes and BMI categories.

Keywords: dietary intake, physical activity level, body weight status

NE_24

Sociodemographic , Physical Activity Level and Body Weight Status Among Coronary Heart Disease Patients and At Risk of Coronary Heart Disease Patients in Terengganu, Malaysia

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Abstract

Coronary Heart Disease is a disease that leads to morbidity and mortality in many countries world-wide including Malaysia .Socio-demographic, body weight status and Physical Activity Level are several risk factors that contribute to the CHD. Good socio-demographic, healthy body weight and regular physical activity have beneficial impact to an individual to maintain health and reduce risk to get CHD. However, there is limited study on socio-demographic, physical activity level and body weight status among coronary heart disease patients and at risk of coronary heart disease patient in Terengganu, Malaysia. To determine the associated factors (sociodemographic ,body weight status and PAL) of CHD in Terengganu , Malaysia**.** This was retrospective cross-sectional study carried out CHD and at risk CHD patient in Terengganu. There were 136 patient; 68 CHD patients and 68 at risk CHD patient participated in this study. Data on socio-demographic, PAL and body weight status were collected by using questionnaire and IPAQ. The results showed no significant different in PAL and body weight status between CHD patients and at risk CHD patients. There were significant association between gender and household income and CHD. Men were 25% higher odd getting CHD compared to women, Whilst patients with household income of moderate were higher odd of getting CHD compare patients with other household income. There was significant association between CHD and other socio-demographic between CHD body weight status and PAL found in this study. Thus, this studies are recommended to be carried out to observe the association between sociodemographic, body weight status, physical activity level and CHD.

Keywords: CHD, PAL, IPAQ

NE_25

Factors Associated with Breakfast Habits and Supplement Intake Among Health Science Students in Terengganu

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Abstract

Health science students has been exposed on the benefits of taking breakfast regularly and also the encouragement to meet daily nutrient needs. Most previous studies have focused on adolescent and children despite the higher risk of skipping breakfast among young adults. In addition, there are lack of study/research available that discovers the influence of sociodemographic factors and body weight status with breakfast habits and supplement intake of university student in Malaysia particularly in Terengganu. A cross-sectional study was carried out to investigate the breakfast habits and supplement intake among Health science students in the public university. A total of 285 participants completed a questionnaire on breakfast habits and supplement intake. Their anthropometric parameters such as weight, height and body fat percentage were also obtained. Pearson's chi square test was used to observe the association between sociodemographic factors and anthropometric parameters with breakfast habits and supplement intake. The prevalence of breakfast eating and supplement consumption was 42.5% and 34.7% respectively. This study found a significant association between gender ($p=0.042$) and study course ($p=0.009$) with breakfast habits. Other than that, a significant association was also observed between study course ($p<0.001$) and body weight status ($p=0.010$) with supplement intake. The highlights of this study are the remark significant differences in supplement intake between nutrition related course and non-nutrition related course. This finding was unique as this is the first study to investigate such relationship. However, further research is needed to assess any other factors that might be contribute to this significant relationship.

Keywords: Breakfast, Supplement, Health Science, Students, Young Adult

NE_26

Association Between Body Weight Status and Feeding Issues Among Cerebral Palsy Children in Community-Based Rehabilitation Centres

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Abstract

Cerebral Palsy (CP) is a disorder that cause persisting and non-progressive conditions in the motor control development of as a result of an injury in parts of brain. It occurs in 1 – 2 of every 2000 babies born in Malaysia and 2.11 per 1000 live births worldwide. Poor oral-motor will impair the child's ability to safely consume calories and nutrients daily. Besides, low resting energy expenditure due to hypertonia or movement disorder will consequently lead to feeding issues such as dysphagia, constipation, gastroesophageal reflux disease and malnutrition. This study was conducted to determine the association between body weight status and feeding issues among CP children in Community-Based Rehabilitation (CBR) in Kuala Nerus and Kuala Terengganu. A total of 26 primary caregivers were involved in this cross-sectional study. Body mass index was used as an indicator for body weight status and feeding issues were reported through questionnaire via face-to-face interview with the primary caregivers. This study reported a prevalence of 57.7% CP children were underweight and 42.3% were having normal body weight status. The common feeding issues reported obtained through the questionnaire and the result found 11 types of problems related to oral, digestive and other issues such as allergy, less appetite and strict food choices. No significant association between the presence of feeding problems and nutritional status was found by using Chi-Square test. The results of this study can be use as reference for the new and recent information regarding nutritional information related to CP children.

Keywords: *cerebral palsy, disability, community-based rehabilitation centers, feeding issues, body weight status*

NE_27

Influences of Sociodemographic and Feeding Characteristics on Body Weight Status among Children with Down Syndrome in Terengganu.

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Abstract

Down syndrome (DS) is commonly associated with weight problem contributed by psychological factors such as low resting energy expenditure (REE), impaired autonomic function, low muscular strength and muscle hypotonia. Other modifiable factors including sociodemographic and feeding characteristics also contribute to this problem. However, data on the influence of these factors are still scarce especially in Terengganu. Therefore, this study was conducted to identify the relationship between sociodemographic factors and feeding characteristics on weight status among DS children in Terengganu. Ninety DS children (mean age: 9.14 ± 9.00 years old) from 30 community-based rehabilitation centres (CBR) across Terengganu were involved in this cross-sectional study. A structured questionnaire was used to gather their sociodemographic data and feeding information. The body weight status was classified according to specific growth chart for DS. Multiple logistic regression reporting odds ratios (ORs) was used to determine the association between study factors. Multivariate models were adjusted for age category, gender, household size, parental education level, household income and feeding difficulties. The prevalence of overweight or obese among DS children was 17%. There was no significant relationship between study factors and weight status among DS children in CBR Terengganu. A DS children with increasing 1 family member has 4.06 times lower odds of becoming overweight or obese (95% CI 0.73, 22.61, p=0.11) and a DS children with feeding difficulties has 31% odds of becoming overweight or obese (95% CI 0.06, 1.72, p=0.31) when adjusted for other confounders. Only 9.1% of the variation in body weight status of DS children was explained by child's gender, parental income and education. This suggest the requirement to explore other associated factors such as obesogenic environment and family role to prevent the increment in the prevalence of overweight and obesity in this populations.

Keywords: socio-demographic, down syndrome, feeding characteristics, body weight status

NE_28

The Relationship between Physical In-Activity and Obesity in High School Students during Corona Virus Pandemic In Indonesia

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Abstract

The Corona Virus pandemic affects the physical activity and increases the incidence of obesity children globally. The government's regulation on 'schooling from home' during the pandemic limits the movement to carry out the physical activity in their life. This study aims to determine the relationship between physical activity and obesity in high school students during the corona virus pandemic. The study design was survey analytic with a cross-sectional approach. The population consists of the high school students aged between 15-19 years from 22 provinces in Indonesia, and total sample of 279 students were taken by using accidental sampling technique. Physical activity data where taken by using the questionnaire of PAQ-C and data analysis used chi-square statistical test. Results: Most of overweight and obese student were physically in-active/ sedentary (31.8 % and 21.6% respectively), where girls (74.2%) are more active than boys (25.8%). Obesity occurred more frequently in girls (80.8%) than boys (19.2%). There is a significant relationship between physical in-activity and obesity in high school students (P-value = 0.000) and (CI = -0.533 **). Conclusion: Less active in high school students are high and will increase the number of obesity in Indonesia. Improvement the regulations of physical activity during ‘school from home’ is needed during the corona virus period.

Keywords: Physical activity, obesity children, sedentary life style, the Corona Virus Pandemic

NE_29

A Descriptive Study: The Prevalence of Diabetes Mellitus Gestasional (GDM) In Indonesia

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Abstract

Gestational Diabetes Mellitus (GDM) is a disorder of carbohydrate tolerance that increases blood sugar levels. It is first known during the second and third trimester of pregnancy. This study aims to determine the description of gestational diabetes mellitus (GDM) incidence in Sleman Yogyakarta in 2018. This research was observational descriptive with a retrospective approach. This study used secondary data wich written from medicalrecords blood sugar classification ≥105 gr/dL and fasting blood sugar ≥126 gr/dL. The population was 1023. The sample was 80 which was taken by using simple random sampling technique from January-December 2018 at Minggir Primary Health Center, Tempel I Primary Health Center and Mlati 1 Primary Health Center, Sleman, Yogyakarta. The results of the study showed that from 80 pregnant women who examined their blood sugar levels, 47 respondents (58.8%) experienced DMG, 39 respondents (48.8%) aged ≥35 years, 50 respondents (62.5%) had preterm gestational age, 34 respondents (42.5%) had primary education (elementary / junior high), 47 respondents (58.8%) did not work/housewives, 54 respondents (67.5%) were parity ≥2x, 38 respondents (47.5%) were overweight, 47 respondents (58.8%) had GDM history, 47 respondents (58.8%) had hypertension in pregnancy, and 41 respondents (51.3%) had an incomplete Ante Natal Care (ANC) examination. It can be concluded that the incidence of GDM in Sleman is high, with characteristics of age at risk (≥35 years), history of previous illnesses and obesity. Therefore, regulations are needed to identify pregnant women with age-at-risk conditions, history of previous illnesses and obesity, so that pregnant women can be screened especially in the third trimester of DM during pregnancy.

Keywords*: Gestational Diabetes Mellitus*, prevalence, pregnant women

NE-30

Sedentary Lifestyle and Relationship with Children's Obesity in Primary School during Corona Virus Pandemic in Indonesia

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Abstract

The Covid-19 pandemic affects sedentary behavior and can increase cases of obesity in children. The 'school from home' policy during the pandemic resulted in an increase in the number of screen times and limited physical activity outside the home. This study aims to determine the relationship between sedentary lifestyle and obesity in elementary school children during the Covid-19 pandemic. The study design was an analytical survey using a cross-sectional approach with the number of respondents 141 elementary children from 16 provinces, in Indonesia using accidental sampling technique. Anthropometric data were measured and the criteria for obesity were using the z-score. Physical activity data were obtained using the PAQ-C. Data analysis used the Chi-square statistical test of SPSS 21 program. Results: The prevalence of obesity was 42 children (29.8%) and overweight 51 children (36.2%). Girls are more obese than boys, namely 22 children (15.6%) and 20 children (14.2%) respectively. Sedentary behavior of 99 children (70.2%) and quite active as many as 37 children (26.2%), girls were more sedentary than boys, namely 50 children (35.5%) and 49 children (34.8%). There is a significant relationship between sedentary lifestyle behavior and the incidence of obesity in elementary school children with a value (p-value = 0.033) with (CI = -0.0179). Conclusion: high sedentary behavior and less physical activity affect the incidence of obesity in children during the pandemic, who sit in front of a computer screen for 5-6 hours / day to do online learning. Suggestion: to strengthen the learning curriculum for health education in schools that is derived from the aspects of children's active behavior in everyday life and further research is carried out.

Keywords: Obesity children, risk factors, sedentary lifestyle, corona virus pandemic

NE_31

The Association Between Nutritional Status and Cognitive Performance Among Adolescents in A Selected Private Orphanage House in Terengganu, Malaysia

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Abstract

Nutrition is the foundation for human health and development across all stages of the life course. It molds and influences survival, mental and physical development, overall healthy living and economic productivity from the initial phases of fetal life to old age. Growth failure and micronutrient deficiency during childhood and adolescence can interrupt growth and initiate high risk of chronic diseases in adulthood. During this crucial period in the life course, it is the time when the development of the body, brain and behaviors are instant, it opens a window of chance for interventions that may influence health throughout lifespan. The aim of this study was to explore the association between nutritional status and cognitive performance among adolescences in a selected private orphanage house in Terengganu, Malaysia. A cross-sectional study was conducted among 93 orphanage adolescences aged between 13 - 16 years old. All of the participants received a set of questionnaires consisting of sociodemographic information, anthropometric assessment, Food Frequency Questionnaire (FFQ) and cognitive performance assessment (FSIQ-2). The present study found the mean BMI-for-age of the adolescences in the orphanage house falls under normal weight category. There was a significant difference between intake of polyunsaturated fat, sodium, thiamine and riboflavin among the female and male adolescences. Meanwhile, the cognitive assessment showed that the overall participants were in the low average category based on 2003 WISC-IV IQ classification. In conclusion, there were no significant correlation between the BMI-for-age and cognitive performance. However, there was a significant association between IQ classification and some macronutrients intakes. Nevertheless, it was suggested that further studies should be done longer time-wise, in a prospective manner to explore the association between nutritional status and cognitive performance among adolescences.

Keywords: Nutritional status, Body Mass Index (BMI), Food Frequency Questionnaire (FFQ), cognitive performance, orphans

NE_32

Association Between Social Support and Malnutrition Among Elderly in Terengganu

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Abstract

Malnutrition refers to impaired nutritional status which can be undernutrition or overnutrition. Social support is one of the factors in determining the nutritional status of an elderly. A cross sectional study was carried out to investigate the association between malnutrition and social support among elderly aged 60 years old and above in Terengganu. The objective of the study was to determine the association of the social support and malnutrition among elderly in Terengganu. Data were analyzed using Pearson and Spearman Correlation study. A total of 326 respondents from eight districts were enrolled in this study. Sociodemographic characteristics and anthropometric measurements (weight, height, waist circumference, calf circumference) were assessed whilst malnutrition status was assessed using Mini Nutritional Assessment and social support level was assessed using Medical Outcome Study Social Support Survey. Out of the total sample, 48.5% of the respondents were male and 51.5% were female. The mean age of respondents was 67.48 ± 5.848 years. Prevalence of malnutrition was 0.6% and at risk of malnutrition was 27.9%. The proportions of respondents with good and poor social support were 68.1% and 31.9% respectively. Significant result was only found in MNA scoring and BMI. Nevertheless, there was no association between social support and malnutrition in this study. This finding suggested that malnutrition is not associated with social support among elderly in Terengganu. More research is needed to determine the risk factors of malnutrition among elderly.

Keywords: Malnutrition, nutritional status, body mass index, social support, elderly

NE_33

Food Poisoning Prevention During Dining Out: A Preliminary Study Of Knowledge, Attitude, Practice And Perception Among Consumers At Rural Area In Terengganu

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Abstract

Foodborne diseases are increasingly recognized as a serious, worldwide public health concern. The main factors in reducing foodborne outbreaks are the strong knowledge, attitude, practise, and perception (KAP^2) of food poisoning prevention. Nevertheless, limited KAP^2 studies have been conducted among consumers particularly in rural areas. Thus, this preliminary study was conducted to evaluate the level of food poisoning prevention knowledge, attitude, practice, and perception among 100 voluntary consumers in Kuala Nerus, Terengganu, selected through a non-probability convenience sampling. Data were collected using a self-administered questionnaire to collect the data of KAP^2. The questionnaire consists of five sections; sociodemographic characteristics, knowledge (42 items), attitude (10 items), practices (10 items), and perception (5 items). The scoring method used the original Bloom's cut- off points with 80%-100% (high level), 60%-79% (moderate level), and ≤59% (low level). Overall, the results showed a moderate level of knowledge with a median knowledge score of 29.0 (out of 42.0) and an interquartile range (IQR) of 7.0. Positive attitude with 46.0 (out of 50.0) median attitude score and IQR of 7.0. Good level of practice with a median practice score of 34.0 (out of 40.0) with IQR of 5.0. Moderate level of perception on food poisoning prevention with the median perception score of 17.5 (out of 25.0) with IQR of 4.0. Thus, a need for relevant educational food poisoning prevention exists in this group due to a moderate level of knowledge and perception, which might influence their preventive behaviour**.**

Keywords: Food poisoning prevention, knowledge, attitude, practice, perception, consumer

NE_34

Effects of In Utero BPA Exposure and Postnatal Trans Fat Diet on Childhood Obesity in Sprague Dawley Rats

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Abstract

Bisphenol A (BPA), which can be passed from mother to foetus transplacentally, has been linked to obesity (1,2). BPA levels are correlated with increase in body mass index (BMI) and waist circumference (WC) in both children and adults (2). Similar findings were observed with trans fat diet (TFD) intake (3,4). To investigate whether prenatal BPA exposure and postnatal TFD worsen obesity parameters. Eight pregnant Sprague Dawley rats were divided into two groups: control group (CTL, N=4) and no-observed-adverse-effect-level (NOAEL) dosage BPA-exposed group (BPA; 5000 µg/kg/day, N=4). BPA was given orally via drinking water from gestational day (GD) 2 until the end of gestation. BPA-free water bottles were used to avoid potential contaminations from sources other than administered drinking water. Systolic, diastolic and mean arterial blood pressure of dams were taken at GD-1, GD7 and GD14 whereas their food and water intake, BW and WC were measured at GD2, GD7 and GD14. Offsprings were delivered normally and were weaned off up to 21 days. From postnatal day (PND) 22 onwards, offsprings were fed with 25%kcal TFD, forming CTL-TFD (n=4) and BPA-TFD (n=4) groups. BW, WC, water and food intake of offsprings were measured weekly at postnatal day (PND) 22, PND28 and PND35 (adolescence). Prenatal NOAEL dosage of BPA may not affect the physiological parameters of rat offsprings, although it has been reported that the biochemical parameters of rat offsprings (PND15 and PND21) exposed to postnatal NOAEL dosage of BPA were altered (5). Additionally, there were also cases of normal weight obesity in both human and animal models (6,7). Variations in experimental outcomes could be due to different biological processes and experimental conditions.

NE_35

Consumers' Attitude, Consumers' Satisfaction, Consumers' Awareness of Food Safety and Consumers' Purchase Intention of Food Ordered Through Online Food Delivery Using Mobile Application in Penang Island

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Abstract

Online food delivery is used worldwide and getting so popular nowadays where people can find different type of food online then purchase it and then the food is delivered to their house, office or any place available. Food delivery application is an application that is used by many people by purchasing food through online food delivery and then received the food at their house or workplace. It might become one of the concerns in Penang since more and more people used the food delivery apps to order food instead of buying the food directly from the food stores or premises. So this research was done to give the owner of food outlets to develop new strategies to increases their offline and online customer plus to raise awareness of food safety to the consumer who used food delivery apps. The main objectives of this study is to determine the consumers' attitude, consumers' satisfaction and consumers' awareness of food safety and consumers' purchase intention of food through food delivery apps in Penang Island. This study conducted in Penang Island. The data collected through the survey completed by 160 respondents**.** Data obtained analyzed using SPSS. Next, the relationship between consumers' satisfaction and consumers' awareness of food safety it shows a strong positive relationship as the r-value is r=0.708. There is a significant difference between monthly income and consumers' purchase intention with (p=0.005). There is also a significant difference between marital status and consumers' purchase intention of food through food delivery apps which is (p=0.023), and there is a significant difference between age group and purchase intention since the p-value is (p= 0.001). Lastly, there is also a significant difference between occupation with consumers' attitude and occupation with consumers' awareness of food safety with p-value (p=0.025) and (p=0.032), respectively.

Keywords: Food Delivery; Delivery Apps; Attitude; Satisfaction; Purchase intention; Food Safety Awareness.

NE_36

The Efficacy Of Immunonutrition Supplementation In Improving Pressure Ulcers Among Malnutrition For Spinal Cord Injury Patients At The Rehabilitation Hospital

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Abstract

Pressure ulcers is highly prevalent among spinal cord injury patients during rehabilitation phase and may give negative effect on rehabilitation outcomes. This study aims to determine the efficacy of immunonutrition supplementation in improving pressure ulcers among malnutrition for spinal cord injury patients at the rehabilitation hospital**.** A total of outpatients spinal cord injury with pressure ulcers stage II, III, and IV were randomized to receive either high calorie and high protein diet and high calorie and high protein diet with the addition of immunonutrition supplementation for 56 days. All participating patients were assessed for nutritional status using anthropometric measurements, nutritional status using validated Scored Patient-Generated Subjective Global,24 h diet recall, and PUSH score for wound measurement. Demographic data, biochemical profiles, and PUSH were obtained from the patient's medical report. From a total of 20 patients, spinal cord injury with pressure ulcers at baseline 15% of them was severely malnourished during admission to a rehabilitation clinic and 75% of the patients were at risk of malnutrition. The baseline PUSH score was 13.22±3. Only patients receiving additional immunonutrition demonstrated a clinically significant improvement in pressure ulcers healing 13.67±3.4, 9.56±3.0, 7.56±3.5: baseline, day 14, and day 56($p<0.05$). The PG-SGA rating indicated that 10% of patients were at stage A(well-nourished) and 75% were in stage B (moderated malnourished) and 15 % stage C (severely malnourished).Immunotrition supplement has then potential to improve wound healing when given as supplement among spinal cord injury with pressure ulcers with malnourished.

Keywords: spinal cord injury with a pressure ulcer, immunonutrition supplementation, malnutrition, rehabilitation.

Scope: Others

OE_1

Analysis of *Escherichia Coli* and Hygiene Sanitation Processing on Fruit Soup in Aceh Barat District

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Abstract

Fruit soup is an unpackaged beverage product that is widely sold and drunk by the people of West Aceh. This requires us to look at the process of hygiene and sanitation for making fruit soup, poor sanitation will cause food borne disease, one of which is diarrhea. The purpose of this study was to see *Escherichia coli* and sanitation management in fruit soup in Aceh Barat district. The research method uses experimental and observation methods. The population and sample in this study were fruit soup drinks in West Aceh district which consisted of two sub-districts including Johan Pahlawan and Samatiga sub-districts with a total of 16 traders. Experimentally tested 5 fruit soup samples representing the entire population. The results showed that of the 5 samples of fruit soup studied only 1 sample met the requirements and 4 other samples did not meet the requirements. And the results of the highest content of *Escherichia coli (E.Coli)* bacteria were found in the sample code (JP-SB3) and (S-SB5) with 38/100 ml of the sample *Escherichia coli* (*E.Coli).* Based on this, researchers suggest that supervision and counseling be held by related agencies or the Health Office on the importance of Sanitation for Fruit Soup Processing in West Aceh District so that drinks marketed meet health requirements.

Keywords: *Escherichia coli (E. Coli),* Hygiene Sanitation, Fruit Soup

OE_2

Relation between Cat Allergen Skin Prick Test Scores and Allergy Rhinitis Classification in Children

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Abstract

Allergic rhinitis is an inflammatory disease of the respiratory system that is caused by an allergic reaction that has been previously exposed to allergens, one of which is aeroallergens. Cat allergens are indoor aeroallergens which are known to trigger allergic rhinitis in children. The skin prick test is done because it is cheap and the results can be seen immediately. However, the correlation between cat allergen skin prick test scores and the classification of allergic rhinitis in children is not known. The study used was cross-sectional in 92 allergic rhinitis patients. The Skin Prick Test is performed to determine the patient's sensitization to cat allergies. Results were analyzed using the Chi-Square test for differences in sensitization. Meanwhile, to analyze confounding factors using multivariate regression analysis. The results showed that the high score of cat allergen skin prick test in intermittent allergic rhinitis (p = 0.18) was 1 (2%) and in persistent rhinitis was 4 (12%). The low score of skin prick test in intermittent allergic rhinitis (p = 0.04) was 57 (98%) and persistent 30 (87%). From this study, there is a relationship between low score skin prick test scores with the classification of allergic rhinitis in children. This research is expected to help doctors and health practitioners determine the treatment of allergic rhinitis easily.

Keywords: sensitization, cat allergen, classification of pediatric rhinitis

OE_4

Microbiological Status of Food Contact Surface (FCS) and Food Handlers Hand (FHH) At Selected Café and Restaurant in Long Beach Redang Island, Terengganu

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Abstract

Food safety and food hygiene are an important element for food handlers to consider especially for commercial foodservice located in isolated but populated tourism areas such as island destination. Few studies have reported on the microbiological status of café and restaurants, which food provision mainly involved local and international tourists. This case study aims to examine the microbiological status of Food Contact Surface (FCS) and determine Food Handler's Hand (FHH) at selected café and restaurant in Redang Island, Terengganu. A total of eight restaurants and cafes located in Long beach, the key tourist enclaves were selected using snowball sampling. The environmental samples collected included swabs from food handlers' hand, chopping board, knives and freezer's internal surface. Microbiological analysis for total plate count (TPC), total coliform, Coagulase Positive *Staphylococci*, *Escherichia coli, Bacillus Cereus* and *Salmonella spp.* from FCS (n=12) and FHH (n=8) samples were carried out. Samples were taken by following the procedure described by FSQP (2013). All statistical analyses were performed using the Statistical Package for Social Sciences, SPSS Version 20. Microbiological analysis showed the highest unsatisfactory results accounted for total plate count (90.0%) followed by total coliform (60.0%), Coagulase Positive *Staphylococci* (55.0%) and less than 5.0% of samples showed the presence of *Escherichia coli.* However, *Bacillus Cereus* and *Salmonella spp*. was not detected in any of the samples tested. This study suggested that there is a need to have more effective training program of food handlers in café and restaurant in order to bring into positive behaviour toward good hygienic practices to ensure safe and hygienic food provisions at island destination.

Keywords: Redang Island, food contact surface, food handlers' hand, restaurant, microbiological analysis

OE_5

Food Safety Culture Factors That Influence Attitude and Practices of Food Handlers at Orphanages in Terengganu

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Abstract

Recently, about one in every ten people each year around the world were sickened by foodborne disease. Mostly, foodborne illness occurs due to the consumption of unsafe food. Most of the food handlers in orphanages are lack of educational background and lack of exposure to the knowledge of food safety. Therefore, this qualitative research purpose was to study the food safety culture factors that influence the attitude and practices of food handlers during the operation of the food premise at orphanages in Terengganu. Besides, a conceptual, theoretical model also has been developed in this research. Semi structure interview has been conducted in three orphanages with a total of food handlers (n=20). The thematic analysis was used to reveal the factors of food safety culture that influences the attitude and practices of local food handlers in Terengganu orphanages. Findings illustrate that inconveniency issues, challenge to change new attitude and procedures as well as assertive towards new knowledge were the themes that have been found in this study. Thus, a conceptual, theoretical model also resulted that, most of the food handlers still firm with their attitudes and practices despite training has been given to them.

Keywords: Food safety culture, Food handlers, Orphanages, Foodborne disease

OE_6

The Influence of Information and Culture on Work Safety Risks for Fishermen

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Abstract

Information and cultural have a very strong influence on occupational safety risks for fishermen. Based on the initial survey, the werw 68 fishermen. The cases of work accident in fishermen in and in 2019 there 2018 smounted to 4 people and in 2019 therev3 cases of work accidents in fishermen. The purpose of this study was to examine the influence of information and culture on the risk of occupational safety for fishermen in Meureubo Village, Meureubo District, West Aceh Regency. Analytical survey research method with a cross sectional approach. The population is 68 people. The total sampling technique sampel, namely 68 fishermen. Was carried out in February 2020. Univariate and Bivariate analysis using the chi-square test. The results of the study show the influence of information and cultural on the safety risk of fishermen, which is evidenced by the value of (P.value <α 0.05). the conclusion is that there is a significant influence between information and cultural on the safety risk. Suggestions for fishermen to pay more attention to safety at work conducted research with different variables related to the occupational safety risk of fishermen.

Keywords: Information, Culture, Occupational Safety Risk, Fishermen

OE_7

Description of Trends Acute Respiratory Infections (ARI) in High Risk Area Zone Exposure to Coal Dust of Pt. X in West Aceh

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Abstract

The ARI data researchers got was from the Meureubo Public Health Center, which was public health center whose working area was the area where this company was founded. The cases of ARI at the Meureubo Public health center trend to increase every year after the active operation of the industry in this company based on initial interviews with public health center officer. The purpose was explored an description of ARI trends in the high risk zone of PT X coal dust exposure in West Aceh. The method was combination methods with descriptive survey design of Public Health Center data and phenomology, the research sample was secondary data: ARI and community data totaling 7 people with the criteria for residence 0-3 km from PT.X taken by purposive sampling. The results was increasing trend based on case data taken from the Meureubo Public Health Center, proportion of cases from 2012: 10%, 2013: 11%, 2014: 11.1%, 2015: 11.3%, 2016: 11.4% , 2017: 11.4%, 2018: 11.5%, 2019: 11.6%, Sept 2020: 10%. Data from interviews with 7 community leaders stated that they experienced respiratory complaints because of the coal dust produced by PT.X. During the establishment of the company, there were residents who experienced ARI and their family members, they also complained that their land was ungrowed and the plants they planted ungrowed. The conclusion was increasing trend of ARI in the zone of high risk areas for exposure to coal dust of PT. X based on data from the Meureubo Public Health Center, and the community experiences respiratory complaints.

Keywords: ARI, Coal Dust

OE_8

The Effect of Some Types of Refugia Plants on the Population of Wheal Fleas and the Production of Red Chili Varieties (Capsicum Annum L.)

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Abstract

The purpose of this study was to measure the effect of refugia on whitefly population and the production of several varieties of red chili (Capsicum annum L.). This research was conducted in the experimental garden of the UTU Faculty of Agriculture, West Aceh Regency from March - June 2019. Materials used: TM 999 chili seeds, Lado F1 variety, and F1 lidia variety, NPK fertilizer, manure, Kenikir flower plants, Zinnia flowers and polybags. Tools used: hoe, gembor, hand sprayer, camera and stationery. This study used a 3x2 split plot design with 3 replications. The factor studied was the presence of whitefly. As the main plot Refugia (R) consists of three levels, namely R0 = Control, R1 = Zinnia and R2 = Thinking. Variety (V) consists of 3 levels, namely V1 = TM 999, V2 = Lado F1 and V3 = Lidia F1. The variables observed were the calculation of whitefly population, the percentage of attack rate and production per plot. The results showed that Refugia plants had a very significant effect on whitefly population, percentage of pest attack rates and production per plot. Variety has a significant effect on the percentage level of pest attack and production per plot.

Keywords: Production, Chili Plants, Refugia Plants, Varieties, Whitefly

OE_9

Diagnostic performance of PSA in prostate cancer diagnosis. A retrospective analysis in HUSM

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Abstract

Prostate specific antigen (PSA) value is strongly correlated with prostate cancer volume. However prostate cancer has relatively low sensitivity reported at PSA cut off value of 4.0ng/ml. Thus, it has a low positive predictive value at lower range of PSA. Some patient who underwent prostate biopsy as result of equivocal PSA value experienced physical discomfort with unnecessary complication while the result came back negative. In regard to this, various method of improving the diagnostic capability of PSA are available namely PSA density. Furthermore, readjustment of the PSA cut off value following local demographic may further improve the selection of patient for TRUS biopsy and overall outcome. A retrospective cohort analysis carried out to revise the PSA value and to find the use of PSAD. A total of 137 patients were recruited with mean age of 69 years old. The prevalence of prostate cancer were found to be 22.6%. Receiver operating curve were presented to illustrate the diagnostic ability of PSA and PSAD and the area under the ROC curve were reported. The new cut off point of >14.8 has more balance sensitivity and specificity, with sensitivity and specificity of 87.0 and 91.51 respectively. While the PSAD has higher positive predictive value when cut off point more than >0.24 is being used. It has high specificity without compromising sensitivity. With the revise PSA and PSAD value, a better selection of patient is possible to rule out prostate cancer and reduces number of patients going through unnecessary TRUS biopsy. We conclude that this study provide better yield in prostate cancer detection and directly assist in reducing the unnecessary TRUS guided prostate biopsy.

Keywords: Prostate specific antigen(PSA), Prostate specific antigen density(PSAD) TRUS guided prostate biopsy, cut off value, specificity

OE_10

The Effect of Gender on BAL Exzz Subjective Visual Vertical (SVV) Finding among Healthy Adults

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Abstract

The BAL EXzz Subjective Visual Vertical Test (SVVT) using the bucket method is one of the objective vestibular assessment that is easy to conduct in clinical practice to determine the otolith organ function. BAL EXzz SVVT & SVHT in a new invention there no normative study done yet among healthy adults in Malaysia. Our objectives of this study are to obtain the normative values of the absolute value of the vertical deviation for the bucket method and to evaluate the effect of gender on the SVV finding. A total of 30 participants with equal gender numbers have been recruited for this study. Following the screening process using the MVVSS questionnaire, the participants were instructed and tested for BAL EXzz SVVT. The test was conducted according to the standard protocol and on each clockwise and counter-clockwise direction three respective measurements were performed. The measurable variables in this study are the absolute value of the vertical deviation of BAL EXzz SVVT from participants of different genders. Using the Independent T-test, the result shows that there were no significant differences in the absolute value of the vertical BAL EXzz SVVT difference between the gender ($p<0.05$). It shows that the influence of gender on findings is negligible. The average value of the absolute value of the vertical deviation was determined to obtain the normative results. The normative value of BAL EXzz SVVT in this analysis was found within the range of -13.5 degrees to -4.0 degrees. In general, BAL EXzz SVVT is one of the good tools for vestibular assessment, in particular for the controls of the otolith function, since it shows no impact on gender differences in the difference in angle between healthy adults. However, more study with larger samples needs to be conducted in the future, so that we can obtain better outcomes on the research findings.

Keywords: SVVT, bucket method, BAL EXzz, MVVSS, vestibular assessment

OE-11

Interferences of HbA1c analysis in Hospital Universiti Sains Malaysia- 3 years study

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Abstract

Haemoglobin A1c (HbA1c) is a glycated haemoglobin produced after glucose attachment to the N-terminal valine of the haemoglobin (Hb) β-chain. It reflects the average plasma glucose concentration of normal erythrocytes life span which is around 120 days. HbA1c is used to diagnose diabetes mellitus, monitor the glycaemic control and predict diabetic complications. HbA1c can be quantified based on charge or structural differences. Measurement of HbA1c can be interfered by Hb variant and other Hb derivatives (carbamylated Hb and elevated labile A1c). This study is to determine the percentages and type of interferences during HbA1c analysis and the percentages of non-reportable HbA1c results. This is a cross sectional study using retrospective data of HbA1c in Endocrinology Laboratory Hospital USM from January 2017 to December 2019. The HbA1c is measured on Biorad D10 using ion-exchange high performance liquid chromatography (HPLC) method. The data were analysed using descriptive statistic. A total of 26,560 patients were included. The result showed the presence of interferences of 2269(8.56%). The most common causes of the interferences were Hb variant (8.48%) followed by carbamylated Hb and labile A1c (0.03% each). The non-reportable HbA1c results were 0.46% with Hb variant contributed most of the causes. For Hb variant, 4.44% of the results were non-reportable. The interpretation of HbA1c in the presence of interferences especially Hb variant should be interpreted with cautious in order to prevent mismanagement of diabetic patients.

Keywords: HbA1c, interferences, haemoglobin variants, HPLC, carbamylated haemoglobin, labile A1c

OE_12

Determinants for tuberculosis among smoker: A case-control study in Kelantan

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Abstract

Tuberculosis (TB) is still a major public health issue. Smoking is a known risk factor for TB disease. However, within the smoker population, risk factors for TB disease has not been well-established. This study aimed to determine the risk factors for TB disease among smoker attendees to health clinics in Bachok, Kelantan in 2019-2020. A case-control study was conducted in March until July 2020 among smokers (either active, passive, or ex-smokers), aged 18 years and above. Data were gathered from 159 attendees using proforma. Cases were patients diagnosed with TB and controls were attendees without TB disease. Simple and multiple logistic regression was applied. Out of 159, 45 (28.3%) were cases and 114 (71.7%) were controls. Ex-smokers (aOR=6.17, 95% CI=1.55,28.32) had a six times higher risk to have TB disease compared to passive smokers. With every increase of one week having TB symptoms, the risk of getting TB disease increased the odds by 12% (95% CI=1.04,1.29). Those experienced weight loss (aOR=13.45, 95% CI:4.58,44.46) and night sweats (aOR=63.84,95% CI=8.99,1392.75) had greater risk for TB disease. The presence of these four risk factors in smokers highlights the need for a thorough history and clinical examination for early TB diagnosis for immediate treatment and break disease transmission.

Keywords: tuberculosis, smoker, risk factor, case-control, symptoms

OE_13

Comparison of HbA1c Level Measured by HPLC and Capillary Electrophoresis among Patient with High Urea

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Abstract

Utilisation of HbA1c in diagnosis and monitoring of diabetes mellitus is accepted and validated worldwide. Standardisation between various methods available is no longer an issue. However, knowledge of HbA1c interference by various haemoglobin (Hb) fractions presence in the patient's sample must be taken into account during HbA1c analysis and interpretation. Carbamylated Hb (cHb) is one of Hb fractions, formed when Hb condensed at the N-terminal valine by cyanate derived from spontaneous decomposition of urea which usually raised in patients with renal impairment. This study aimed to compare the level of HbA1c in patient with high urea measured using High Performance Liquid Chromatography (HPLC) and Capillary Electrophoresis (CE). After analysis using the laboratory's routine method, or HPLC, the patient's samples with concurrent urea level of >25 mmol/L were re-analysed within 2 hours using the comparative method or CE. A cut off cHb of 2% on HPLC considered as no interference. The mean level of urea was 31.37±5.09 mmol/L (range 25.2-43.1mmol/L). Out of 68 samples, only 24 cHb were detected by HPLC but only less than 2% and none cHb detected on CE. Correlation between HPLC and CE showed no significant different in HbA1c measurement (r= p>0.05). Therefore, we propose that both HPLC and CE can be used to determine HbA1c level in patient with high urea.

Keywords: High Urea, Carbamylated haemoglobin, HbA1c, HPLC, CE

OE_17

Oscillopsia: Challenges in establishing the diagnosis of Bilateral Vestibular Hypofunction

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Abstract

Bilateral vestibular hypofunction (BVH) is characterized by reduced function of both vestibular organs, the vestibular nerves or a combination of both, which results in impairment of the major functions of vestibular organs such as gaze stabilization, maintaining balance and postural control. The symptoms are intricate and is known to have many causes. This paper is case report of a 45 years old lady with underlying primary open angle glaucoma, presented with bothersome intermittent oscillopsia for past 5 years. The symptom was recurring almost every day. She describes it as objects moving 'up and down' which resolves spontaneously on eye closure. There was no gait instability, imbalance or dizziness. She sought treatment from multiple tertiary centres with advanced diagnostic facilities, including Magnetic Resonance Imaging (MRI) brain and Electroencephalogram (EEG). All results were unremarkable, and a definitive diagnosis could not be established. Various medications have been prescribed without much effect or with intolerable side effects. She was treated for suspected Superior Oblique Myokymia and found minimal improvement with Carbamazepine at lower dose. Unfortunately, her symptoms worsened over time, disturbing her basic activity of daily living. Additional history revealed that she has history of prolonged tinnitus. A through Otorhinolaryngology assessment was done and a diagnosis of BVH was made. She was subsequently referred for vestibular rehabilitation and patient has started her sessions accordingly. Acquired bilateral vestibular dysfunction is a devastating disorder that affects different aspects of life significantly. This case highlights the challenges faced in determining the diagnosis of patients with longstanding oscillopsia since the diagnosis is uncommon. These data support the need for new therapeutic strategies for BVH, including vestibular rehabilitation.

Keywords: Oscillopsia, Bilateral Vestibular Hypofunction, Case Report

OE_18

Herpes Simplex Virus Keratitis Masquerading as Acanthamoeba Keratitis

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Abstract

Corneal ulcer, a defect of the corneal epithelium involving the underlying stroma, is a potentially vision-threatening ocular emergency. Prompt identification of the causative pathogen is necessary to prevent significant ocular morbidity. This paper is a case report of a 21-year old female, contact lens (CL) wearer that was referred by a primary healthcare provider for corneal ulcer of the left eye (OS). She had history of CL usage 10 days prior to presentation and initial examination revealed ring-shaped corneal infiltrate characteristically seen in Acanthamoeba infection. Her vision was deteriorating and associated with progressive eye pain. Cultures were sent. With a history of CL usage and non-compliance to CL disinfection method, together with combination of strong clinical evidence, empiric treatment of *Acanthamoeba* consisting of topical chlorhexidine and iodine dressing was commenced, without subsequent improvement. The patient's condition deteriorated over the next several days. Further examination showed a decrease in corneal sensation, and serologic test confirmed the diagnosis of herpes simplex virus (HSV) corneal ulcer. The patient's active lesion slowly improved after initiation of oral acyclovir and she was planned for penetrating keratoplasty later. We report a case of a commonly encountered clinical case, HSV keratitis, with an unusual clinical presentation, mimicking Acanthamoeba keratitis. With timely diagnosis and proper management, good visual outcome is highly probable.

Keywords: Corneal ulcer, Herpes simplex virus, Acanthamoeba, Keratitis

OE_19

Epidemiology of Infant Mortality in West Aceh Regency

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Abstract

Infant Mortality Rate (IMR) is an indicator of health status and a priority target in the Sustainable Development Goals (SDGs) and the National Medium Term Development Plan of Indonesia 2020-2024. Globally, countries that contribute the most of IMR are African and Asian countries (WHO, 2017). Indonesia is one of the Asian countries that accounts for 1-3 percent of infant mortality (WHO, 2016). The results of the Indonesian Demographic and Health Survey in 2017 showed that Indonesia's IMR is 24 per 1,000 live births (LB). Based on data from Aceh Health Profile, it is known that infant mortality in Aceh province from 2017-2019 has decreased from 12/1000 LB to 9/1000 LB. However, the IMR for West Aceh Regency from 2017-2019 experienced a significant increase, from 14/1000 LB to 17/1000 LB. This figure is still high compared to the SDGs target that IMR is expected to be 12/1000 in 2030. This study aims to describe the frequency, distribution and causes of infant mortality from January to September 2020. In this study, secondary data were carried out by analyzing IMR data taken from the Health Department of West Aceh Regency. The results showed that the number of cases in January-September 2020 was 45. The area with the highest case contributed to infant mortality was Panton Reu sub-district, 24.4% infant mortality was caused by Intrauterine Fetal Death (IUFD, while 73.4% babies were died in hospital. Most babies (61.2%) who died were male.

Keywords: epidemiology, infant mortality, IMR

OE_20

A New Self-Administered Vision Screening Concept for Children and Adults: Self-Reporting Eye Screening Questionnaire (SRESQ)

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Abstract

Background: A vision screening can be performed either in the community or in a clinical setting. Mass screening approaches offer broad coverage, while more opportunistic screening occurs in clinical-based settings. Selective screening targets high-risk and specific conditions. **Purpose**: The purpose of this article is to introduce a new self-administered vision screening concept for children and adults from the perspective of questionnaire potential. **Methods**: There were three development steps: idea generation, problem-solving, and implementation. The initiation was about improve the accessibility to the vision screening. Problem-solving approach was to empower the users to self-administer the vision screening. The idea was implemented by substituting the inconveniency of equipment-based vision screening with a questionnaire-based vision screening. Conceptual model and criteria were developed to construct the questionnaire items. **Results**: Self-Reporting Eye Screening Questionnaire (SRESQ) advocates self-administered questionnaire-based vision screening concept. SRESQ embraces a two-tier approach that embedded preliminary screening items with probing screening items. SRESQ integrates wording-image in answer options. SRESQ incorporates main visual domains to screen for the most common vision disorders in children and adults. **Conclusion**: SRESQ concept leverages the unique properties of questionnaires: convenience, and cheap. Its aim is not to make a diagnosis but as an alternative vision screening option. One restriction is the English proficiency requirement of respondents. SRESQ can be used to reduce the burden of equipment-based eye screening as pre-vision screening option. SRESQ can also stand alone as vision screening alternative for those with accessibility problems to eye health care.

***Keywords**:* questionnaire, mass screening, eye screening, vision screening, self-reporting

OE_21

Box-Behnken design for particle size optimization of chitosan nanoparticles

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Abstract

Box-Behnken design (BBD) was used to synthesise chitosan nanoparticles (CSNP) of definite size via ionic gelation technique using sodium tripolyphosphate (TPP) as a crosslinking agent. Different concentrations of chitosan and TPP and stirring time were used as suggested by Design Expert. Nanoparticle size was optimized and validated in terms of statistical significance of coefficients and R2 squared values by BBD. Linear model was suggested to be best fit to explain the effect of variables on particle size. In addition, high R^2 (0.9283) advocates the constancy of the model. To achieve CSNP with the least particle size, optimization step was performed using the suggested values of the variables. The experiments were carried out and particle size was found to be 247±2.8 nm compared to 244.5 nm as a predicted value. Therefore, the model exhibited high adequacy and small error percentage between experimental and predicted values, establishing the reliability and robustness of the model to be used in CSNP preparation.

Keywords: Box-Behnken design, chitosan, nanoparticles, particle size, tripolyphosphate.

OE_22

Optimization of size and swelling of alginate beads

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Abstract

Alginate is an anionic hydrophilic natural polymer present in the cell walls of algae. It has been widely applied for taste masking and oral drug delivery due to its biodegradability and biocompatibility. Alginate hydrogel is formed ionically by crosslinking with divalent cations such as Ca^{2+}. Synthesis of spherical alginate hydrogel beads with desired size and swelling behaviour are the main target in biomedical and pharmaceuticals applications. Various formulation factors can significantly influence the size and swelling of alginate beads. In this work, we investigated the impact of alginate and crosslinker concentration as well as nozzle size on alginate beads prepared by means of dripping method. Response surface methodology based on central composite design (CCD) was employed to optimize the size and swelling response of alginate hydrogel beads. The results showed that the crosslinker concentration and nozzle size have the strongest impact on size coefficient, meanwhile the crosslinker concentration had the highest effect on the swelling of the beads.

Keywords: alginate, beads, swelling, response surface methodology, central composite design.

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