KOLOKIUIM
SISWAZAH FSK
2016

2 - 3
AUG 2016
8.00am - 5.00pm
DEWAN KULIAH 1 - 4

"Nurturing Excellence in Health Science Research & Publications"

SPEAKERS

PROF DATO’ DR ROSLAN ABD. SHUKOR
CHAIRMAN
UKM PRESS

DR INDANG TRIHARDININ
EPIDEMIOLOGY STATISTIC
UNIVERSITAS INDONESIA

CATEGORIES

Clinical Based
Lab Based
Community Based

ABSTRACT BOOK

ORGANIZED BY:
Graduate Association Faculty of Health Science
&
Faculty of Health Science
Universiti Kebangsaan Malaysia, Kampus Kuala Lumpur
PROGRAMME SUMMARY

1st of August 2016 (Monday)

<table>
<thead>
<tr>
<th>TIME</th>
<th>PROGRAMME</th>
<th>VENUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.00-8.30 am</td>
<td>Arrival &amp; Registration of Participants</td>
<td>Makmal Hentian Siber, PTM</td>
</tr>
<tr>
<td>8.30-1.00 pm</td>
<td>Pre Colloquium Workshop</td>
<td>Makmal Hentian Siber, PTM</td>
</tr>
<tr>
<td></td>
<td>Data Management</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>By Dr Indang Trihadini</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bidang Epidemiologi Statistik,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fakultas Kesehatan Masyarakat, Universiti</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indonesia</td>
<td></td>
</tr>
<tr>
<td>1.00-2.00 pm</td>
<td>Lunch &amp; Zuhur Prayer</td>
<td>Makmal Hentian Siber, PTM/Prayer Room</td>
</tr>
</tbody>
</table>

2nd of August 2016 (Tuesday)

<table>
<thead>
<tr>
<th>MASA</th>
<th>PROGRAMME</th>
<th>VENUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.00-8.30 am</td>
<td>Arrival &amp; Registration of Participants</td>
<td>DK1</td>
</tr>
<tr>
<td>8.30-10.00 am</td>
<td>Oral Presentation Session 1</td>
<td>DK1, 2, 3</td>
</tr>
<tr>
<td>10.00-10.45 am</td>
<td>Opening Ceremony</td>
<td>DK1</td>
</tr>
<tr>
<td></td>
<td>Welcoming Speech</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assoc.Prof. Dr. Nor Fadhilah Rajab,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Organizing Chairman of Kolokium Siswazah</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fakulti Sains Kesihatan, Universiti Kebangsaan Malaysia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Opening Speech</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Prof. Dr. Bariah Mohd Ali</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dean, Faculty of Health Sciences,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Universiti Kebangsaan Malaysia</td>
<td></td>
</tr>
<tr>
<td>10.45-11.00 am</td>
<td>Refreshment</td>
<td>DK1/Canteen</td>
</tr>
<tr>
<td>11.00-11.30 am</td>
<td>Talk 1</td>
<td>DK1</td>
</tr>
<tr>
<td></td>
<td>Dr. Indang Trihadini</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bidang Epidemiologi Statistik,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fakultas Kesehatan Masyarakat, Universiti</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indonesia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Q &amp; A Session</td>
<td></td>
</tr>
<tr>
<td>TIME</td>
<td>PROGRAMME</td>
<td>VENUE</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>1.30-1.00 pm</td>
<td>3 Minutes Pitching Session 1</td>
<td>DK2</td>
</tr>
<tr>
<td>1.00-2.00 pm</td>
<td>Lunch &amp; Zuhur Prayer</td>
<td>DK1/Canteen/Prayer Room</td>
</tr>
<tr>
<td>2.00-4.00 pm</td>
<td>Oral Presentation Session 2</td>
<td>DK1, 2, 3</td>
</tr>
<tr>
<td>4.00-5.00 pm</td>
<td>3 Minutes Pitching Session 2</td>
<td>DK2</td>
</tr>
<tr>
<td>5.00 pm</td>
<td>Tea break &amp; End of Day 2</td>
<td>DK1/Canteen</td>
</tr>
</tbody>
</table>

3rd of August 2016 (Wednesday)

<table>
<thead>
<tr>
<th>TIME</th>
<th>PROGRAMME</th>
<th>VENUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.30-10.00 am</td>
<td>Oral Presentation Session 3</td>
<td>DK1, 2, 3</td>
</tr>
<tr>
<td>10.00-10.30 am</td>
<td>Refreshment</td>
<td>DK1/Canteen</td>
</tr>
<tr>
<td>10.30-11.15 am</td>
<td>Talk 2&lt;br&gt;Prof. Dato’ Dr. Roslan Abd. Shukor&lt;br&gt;Director Penerbit UKM&lt;br&gt;Q &amp; A Session</td>
<td>DK1</td>
</tr>
<tr>
<td>11.15-1.00 pm</td>
<td>Oral Presentation Session 4</td>
<td>DK1, 2, 3</td>
</tr>
<tr>
<td>1.00-2.00 pm</td>
<td>Lunch &amp; Zuhur Prayer</td>
<td>DK1/Canteen/Prayer Room</td>
</tr>
<tr>
<td>2.00-4.00 pm</td>
<td>Oral Presentation Session 5</td>
<td>DK1, 2, 3</td>
</tr>
<tr>
<td>4.00-4.45 pm</td>
<td>Closing Ceremony&lt;br&gt;Closing Speech&lt;br&gt;YBhg. Prof. Dato’ Dr. Mazlin Mokhtar&lt;br&gt;Deputy Vice Chancellor, Universiti Kebangsaan Malaysia&lt;br&gt;Presentation of Awards&lt;br&gt;Photography Session</td>
<td>DK1</td>
</tr>
<tr>
<td>4.45-5.00 pm</td>
<td>Tea Break&lt;br&gt;End of Postgraduate Colloquium</td>
<td>DK1</td>
</tr>
</tbody>
</table>
PSYCHOLOGY (PSY)
ID29 - Factors Associated with Family Impact Among Caregivers of Children with Learning Disabilities in Kelantan

SITI NOR ISMALINA ISA¹, ISMARULYUSDA ISHAK¹, AZRIANI AB RAHMAN², NUR ZAKIAH MOHD SAAT¹, NORMAH CHE DIN³, SYARIF HUSIN LUBIS¹, MUHAMMAD FAIZ MOHD ISMAIL¹ & NUR RIZA MOHD SURADI⁴

¹Biomedical Science Program, School of Diagnostic & Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
²Department of Community Medicine, School of Medical Sciences, Universiti Sains Malaysia, Health Campus, Kubang Kerian, Kelantan.
³Health Psychology Program, School of Healthcare Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur.
⁴School of Mathematical Sciences, Faculty of Science and Technology, Universiti Kebangsaan Malaysia, Bangi, Selangor.

Parentsing a child with learning disability can be a source of significant stress and affects the quality of life (QoL) of the parents and families. The purpose of the present study was to examine the correlation between sociodemographic characteristics, child’s disability-related variables, caregiver’s psychosocial, and caregiver’s health-related quality of life (HRQoL) and family functioning. This study also was aimed to determine the predictors of the total family impact (HRQoL and family functioning) score. A cross-sectional study was conducted on the 383 caregivers of children with learning disabilities in community based rehabilitation centres and schools with special education integration programme in Kelantan, Malaysia. The Malay versions of Perceived Stress Scale, Brief COPE, MOS Social Support Survey, and PedsQL Family Impact Module were used as the research instruments. Data were analysed using Pearson’s correlation and multiple linear regression. The significant correlation coefficients ranged from $r = 0.101$ to $r = -0.642$. The strongest correlation was shown between negative perception of perceived stress and family impact. Moderate correlations were also shown between maladaptive coping and family impact, and between negative perception of stress and maladaptive coping. Results of multiple linear regression analysis showed that child’s care dependency, caregiver’s negative perception of stress and caregiver’s maladaptive coping were the significant predictors of total family impact ($R^2 = 0.475$). The final model suggested that higher child’s care dependency, higher negative perception of stress and higher use of maladaptive coping were associated with lower HRQoL and family functioning. This study revealed that the psychosocial variables are powerful factors to QoL domains rather than sociodemographics or child functioning variables. Information on the factors associated with the impact of caregiving suggest what type of intervention strategies that are appropriate for caregivers in our population.

ID78 - The Relationship of Psychological Factors and Quality of Life Among Caregivers of Schizophrenia Patients

HUI CHIEN ONG¹, NORHAYATI IBRAHIM² & SUZAILY WAHAB³

¹Biomedical Science Program, School of Diagnostic & Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
²Health Psychology Program, School of Healthcare Science, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
³Psychiatry Department, Faculty of Medicine, Pusat Perubatan Universiti Kebangsaan Malaysia, Cheras, Kuala Lumpur

Deinstitutionalization for schizophrenia patients has been introduced in Malaysia and has influenced the caregivers’ quality of life (QoL). The aim of the study was to examine the relationship of psychological distress, burden, perceived stigma and social support with QoL for Physical Component Summary (PCS) and Mental Component Summary (MCS). This study was conducted in the Outpatient Clinic of Hospital Canselor Tuanku Muhriz (HCTM). The cross-sectional study which involved 200 caregivers using instruments such as Short...
Form-12 (SF-12), Kessler’s Psychological Distress Scale (K10), Zarit Burden Interview (ZBI-22), Devaluation of Consumer Scale (DCS) and Devaluation of Consumer Families Scale (DCFS), and MOS Social Support Survey. Results showed that there were significant correlation between psychological distress and burden with PCS, as well as significant correlation between psychological distress, burden, perceived stigma (community rejection, causal attribution), and perceived social support (emotional/instrumental support, physical support, affectionate support, positive social interaction) with MCS. Psychological distress was the best predictor for PCS and MCS. In conclusion, psychological factors especially psychological distress needed to be given appropriate attention to improve the caregivers’ QoL. Therefore, intervention programmes and psycho-education from health practitioners should be provided more often to the caregivers to ensure caregiving at home can be done more smoothly.
BIOMEDICAL, ENVIRONMENTAL AND FORENSIC SCIENCES (BEF)
ID10 - Expression of Surface-Bound Influenza Virus A Strain H5N1 Non-structural 1 (NS1) protein on Lactobacillus casei

TAN TOONG SENG1, SHARIFAH SYED HASSAN2 & YAP WEI BOON1

1Biomedical Science Program, School of Diagnostic and Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
2School of Medicine and Heath Sciences, Monash Malaysia, Sunway Campus

Author’s e-mail: too_seng@hotmail.com

Till date, advances in the molecular biology of lactic acid bacteria have enabled the development of recombinant strains expressing antigens of various pathogens that could give protective immunity against mucosal infections. Here, design and production of a recombinant Lactobacillus expressing one of the most conserved influenza virus strain H5N1 epitope, the NS1 protein, was attempted in this study in hope to provide a broad spectrum protective immunity against influenza infection. Briefly, a polymerase chain reaction (PCR)–amplified 694-bp sequence coding for the NS1 gene was fused into a surface expression plasmid, pSGANC332, at the EcoRI and SalI restriction sites. The recombinant plasmid was electro-transformed into Lactobacillus casei (Lb. casei). Stability of the recombinant plasmid in the Lb. casei was evaluated by comparing the CFU recovered on erythromycin-containing plates with that grown on non-erythromycin-containing plates. Expression of NS1 protein by Lb. casei was confirmed using Western blotting. Immunofluorescence was done to confirm the expression of NS1 protein on the surface of Lb. casei. PCR screening of the transformed Lb. casei clones confirmed the presence of recombinant pSGANC332–NS1 plasmid in the bacteria. Plasmid stability test showed that the recombinant plasmid remained stable (98.94±1.65%) within the first 20 generations of Lb. casei in the absence of selective pressure. Its stability was almost halved after 40 generations and continued to decline to 4.26±2.30% at 100 generations. Western blotting confirmed the expression of a 48kDa NS1 protein by Lb. casei. A plausible fluorescence was observed on Lb. casei expressing NS1 protein but not on the empty Lb. casei. This corroborates the surface expression of NS1 protein. In summary, this study showed that Lb. casei can serve as a host to express surface-bound NS1 protein using pSGANC332 surface expression plasmid. This recombinant Lb. casei is a promising candidate for influenza oral vaccine.

ID16 - Improved Procedures for Isolation of Ribonucleic Acid from Methicillin-resistant Staphylococcus aureus

MUHANNA M. ALSHAIBANI1, NORAZIAH M. ZIN1, JURIYATI JALIL2 & NIK M. SIDIK3

1Biomedical Science Program, School of Diagnostic and Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
2Drug and Herbal Research Centre, Faculty of Pharmacy, Universiti Kebangsaan Malaysia, Kuala Lumpur
3School of Bioscience and Biotechnology, Faculty of Science and Technology, Universiti Kebangsaan Malaysia, Bangi, Selangor

Author’s email: muhanna76@siswa.ukm.edu.my

Extraction and purification of ribonucleic acid (RNA) from Gram-positive bacteria such as methicillin-resistant Staphylococcus aureus (MRSA) using conventional extraction method is problematic because MRSA has a rigid cell wall which contains lipoteichoic acid and peptidoglycan. For that reason, this study was carried out to improve and modify the RNA extraction method which in turn promises high RNA quality of RNA from MRSA. The high RNA quality is defined by good integrity and purity, low production cost, and time-saving. A fast and inexpensive method using acidic phenol: chloroform (5: 1 [v/v]) at pH 4.5 with lysostaphin and Triton X-100 was added in RNA isolation from MRSA. This method yielded a high RNA concentration (1752.26 ng/µL) from bacterial culture with relatively good RIN ratio. Comparing to our results, a number of commercial RNA extraction kits and chemicals such as RNeasy Mini kit, GeneJET RNA purification kit, TRIZol kit and hot phenol:chloroform (1: 1 [v/v]), produced lower purity, integrity and yields ranging from 92–700 ng/µL. In conclusion, the improved method is particularly useful for isolating RNA from MRSA for gene expression analysis.
ID33 - Effects of Aqueous Extract *Hibiscus Sabdariffa* Linn (Roselle) on *Ex Vivo* Maintenance of Hematopoietic Stem Cells

MUHD KHAIRUL AKMAL WAK HARTO, ZARIYANTEY ABDUL HAMID & JAMALUDIN MOHAMED

Biomedical Science Program, School of Diagnostic and Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: muhdkhairulakmal@ymail.com

Usage of hematopoietic stem cell (HSCs) in medical treatment is promising. Method to maintain the quality of HSCs outside its microenvironment remains undiscovered. This study aimed to determine the effect of *Hibiscus Sabdariffa* Linn, or Roselle aqueous extract in maintenance of *ex vivo* HSCs expansion. Mouse bone marrow cells (MBMCs) were isolated using flushing technique and treated with Roselle for 24, 48 and 96 hours of cultures at various concentrations (7.81 – 2000 µg/mL). Cells viability was determined by Trypan Blue Exclusion method. Immunophenotyping of Sca-1+ was done to study the effects of Roselle on HSCs (Sca-1+) population. The oxidative stress profile was determined by reactive oxygen species (ROS), glutathione (GSH), superoxide dismutase (SOD), protein carbonyl and malondialdehyde (MDA) assays. Expression of mouse telomerase reverse transcriptase (mTERT) protein, a senescence marker was studied by western blotting. Following 24h treatment with Roselle, significant increase in MBMCs viability was shown at 500 and 2000 µg/mL. Significant increased were also noted at 48h and 96h of treatments at 250, 1000 µg/mL and 1000, 2000 µg/mL, respectively. Supplementation of Roselle at all tested concentrations able to maintain the survivability of Sca-1+ cells following 96h of culture. A significant increase in ROS level was also noted following Roselle supplementation throughout cultures. In contrast, Roselle supplementation significantly increased the levels of GSH and SOD only at 24h which were reduced at 48h and 96h of cultures. Meanwhile, Roselle significantly lowered the MDA and protein carbonyl levels together with mTERT expression in supplemented groups. Conclusively, Roselle extract shows novel property as potential supplement for *ex vivo* maintenance of HSCs by promoting their survivability and protection against oxidative damage. The potential use of antioxidant supplementation especially Roselle on HSCs *ex vivo* expansion and maintenance could be greatly improved by these findings for future medical and research applications.

ID57 - Prevalence of *Salmonella* on Beef Carcasses and Meat Contact Surfaces at Selected Abattoirs in Selangor, Malaysia

ELIZABETH SINIRISAN CHONG1, NUR FAIZAH ABU BAKAR1, NORAZIAH MOHAMAD ZIN1 & SITI SHAHARA ZULFAKAR2

1 Biomedical Science Program, School of Diagnostic and Applied Health Science, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

2 Environmental Health and Industrial Safety Program, School of Diagnostic and Applied Health Science, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: elizabethchong@siswa.ukm.edu.my

*Salmonella* is one of the common microbiological contaminant in beef. It is a major health concern worldwide due to its ability to colonize the gastrointestinal tract of animals without producing any clinical signs. The main objective of this study was to determine the prevalence of *Salmonella* on beef carcasses and meat contact surfaces at selected abattoirs in Selangor, Malaysia. A total of 156 swabs from two different types of samples: beef carcasses (n=108) and meat contact surfaces (n=48) were collected from the selected abattoirs in October 2015 to June 2016. The collected samples were examined for total viable count and prevalence of *Salmonella*. Samples positive for *Salmonella* were confirmed by standard biochemical tests and PCR. The results showed that samples (N=156) collected from the two abattoirs contained an average viable count of 4.56±1.23 Log CFU/cm2. The overall prevalence of *Salmonella* in this study was 20.51% which beef carcasses contributed 15.74% and meat contact surfaces contributed 31.25% to the overall prevalence. The prevalence of *Salmonella* on meat contact surfaces was higher than that on beef carcasses. The higher prevalence of *Salmonella* on the meat contact surfaces could be attributed to poor hygienic practices in the abattoirs. However, despite a lower
prevalence of Salmonella on the beef carcasses, beef could still be a potential vehicle for foodborne infections. This study suggests implementation of preventive measures and good hygienic practices at the abattoir in order to avoid cross-contamination on beef prepared for retail markets.

ID60 - Zingiber zerumbet Ethyl Acetate Extract and Zerumbone as Novel Neuroprotective Agents in Model of In Vitro Parkinsonism

UMI NORAASHIKIN ZAINUDIN, ASMAH HAMID, FARAH WAHIDA IBRAHIM & MAZLYZAM ABDUL LATIF

Biomedical Science Program, School of Diagnostic and Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: uminoraashikinzainudin@gmail.com

Paraquat (PQ) is a type of herbicide that belongs to the bipyridyl group that is able to induce oxidative damage. Therefore, it has been used in PQ-induced model of in vitro Parkinsonism, such as in human neuroblastoma, SH-SY5Y cell lines. Zingiber zerumbet ethyl acetate extract and its active compound zerumbone have been proven to protect against oxidative damage through its anti-oxidative capacity by expressing antioxidant enzymes. The aim of this study was to investigate the possible protective effects of Z. zerumbet ethyl acetate crude extract and its bioactive compound zerumbone in PQ-induced Parkinsonism model. Cell viability was evaluated initially using MTT assay. In preliminary study, the dose-dependent effects of paraquat (1-1000µg/ml), Z. zerumbet ethyl acetate crude extract (1-500µg/ml) and zerumbone (1-10µg/ml) on cell viability of SH-SY5Y cell line was determined. Then, the paraquat dose which reduced cell viability by 25% (IC25) and 10% (IC10) was used to induce Parkinson characteristic, prior to treatment with either crude extract or zerumbone in the presence or absence of paraquat. The cells were pretreated with different concentrations of Z. zerumbet crude extract and zerumbone for 2 h prior to 24 hour PQ treatment. The level of tyrosine hydroxylase which is gold standard marker used to identify a dopaminergic neurons that involve in Parkinsonism were measured by immunoassay. Results from MTT assay demonstrated that PQ reduced the viability of SH-SY5Y cell line. However, Z. zerumbet ethyl acetate crude extract and zerumbone were able to prevent paraquat’s detrimental effects on viability of SH-SY5Y cell line. The level of tyrosine hydroxylase was significantly reduced by 47.8% (IC25) and 43.5% (IC10) in PQ-induced group vs. control. Both treatments of Z. zerumbet ethyl acetate crude extract and zerumbone were able to restore of the tyrosine hydroxylase level. This finding indicates that both Z. zerumbet ethyl acetate crude extract and zerumbone compound were able to improve cell viability and improve Parkinsonism characteristics.

ID61 - The Association between Physical Fitness with Successful Ageing and Risk of Cognitive Impairment among Malaysian Older Adults

HUIJIN LAU1, ARIMI FITRI MAT LUDIN1, NOR FADILAH RAJAB1 & SUZANA SHAHAR2

1 Biomedical Science Program, School of Diagnostic and Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
2 Dietetics Program, School of Healthcare Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: lauhuijin90@gmail.com

The expansion of ageing population has gained much public attention on the importance of healthy and successful ageing, which is absence of major diseases, preserved physiological and cognitive functioning and active engagement with life. Previous studies have found there was a significant correlation between physical fitness with cognition. However, the relationship between physical fitness with successful and unsuccessful cognitive ageing groups are very limited. This study was aimed to identify the significant physical fitness
parameters that contribute in reducing risk of cognitive decline represented as different cognitive ageing groups. A total of 300 community-based elderly aged 60 and above from the states of Selangor, Perak and Kelantan were recruited using multistage random sampling method in this cross-sectional study. Cognitive function of subjects was categorized into three groups, namely Mild Cognitive Impairment (MCI) (n = 50), Usual Ageing (UA) (n = 50) and Successful Ageing (SA) (n = 50) based on defined criteria. Senior Fitness Tests included 2-minute step, handgrip strength, chair stand, chair sit-and-reach, 8 foot up-and-go and back scratch were measured to determine the cardiorespiratory fitness; muscle strength; agility and flexibility of subjects. SA group had significantly better performance than non-SA groups in all fitness parameters, except for chair sit-and-reach. After controlling for age, sex, education years and smoking status, handgrip strength and chair stand tests were associated with a reduced risk of MCI by 7% [OR: 0.93, 95% C.I: 0.88-0.99, p < 0.05] and 15% [OR: 0.85, 95% C.I: 0.75-0.95, p < 0.01] respectively. These findings suggest that older adults with higher upper and lower body muscle strength could serve as protective factors for cognitive impairment. Further research is warranted to evaluate the mechanism of physical and cognitive decline such as Motoric Cognitive Risk Syndrome (MCR) in more detailed for the purpose of promoting healthy and successful ageing.

ID64 - Cytogenetic Evaluation on Buccal Cells of Paddy Farmers who are Exposed to Pesticides in Sawah Sempadan, Tanjung Karang, Selangor Darul Ehsan

AHMAD ROHI GHAZALLI, NUR SHAZLINA SAIDARI, ZARIYANTEY ABDUL HAMID, ISMARULYSDA ISHAK, SYARIF HUSIN LUBIS, NIHAYAH MOHAMMAD, HIDAYATHUL FATHI OTHMAN & ASMARIAH AHMAD

Biomedical Science Program, School of Diagnostic and Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: asmariahahmad@gmail.com

Pesticides are widely used by paddy farmers throughout the plantation of paddy to increase the quality and quantity of paddy produce. However, exposure to pesticides for a long duration of time is hazardous to human health as it can lead to cancer by causing DNA damage. The presence of micronuclei (MN) and binuclei (BNu) in a cell can be an early sign for cancer progression. Thus, this study was designed to determine the frequency of MN and BNu among paddy farmers who are exposed to pesticides. The frequency of MN and BNu formation was assessed by collecting buccal swabs from 34 farmers in Sawah Sempadan, Tanjung Karang and analysing them cytogenetically using acridine orange staining. The frequency of MN and BNu were then observed under the fluorescence microscope. The data of percentage of MN and BNu frequency was then analysed together with sociodemographic data from a structured questionnaire that was handed to the farmers. Results showed there were a weak negative correlation between duration of pesticides exposures and frequency of MN (r = -0.176, p > 0.05) and BNu (r = -0.132, p > 0.05). This means that long exposure to pesticides did not significantly cause the increase of frequency of MN and BNu. In the aspect of application of PPE, there was a weak negative correlation between MN frequency and application of PPE (r = -0.129, p > 0.05). Meanwhile, there was a significant medium negative correlation between BNu frequency (r = -0.457, p < 0.05) and application of PPE. Consequently, this study revealed that exposure to pesticides does not cause increase in MN and BNu formation significantly. However, when there is low score or incomplete PPE application it will lead to pesticides exposure that will consequently increase the frequency of MN and BNu formation.
ID65 - Metagenomic Insight into Rhizosphere and Endophytic Bacterial Communities of Medicinal Plants and Cultivable Microbes Producing Compounds Active against ESKAPE Pathogens

HARUNA EMMANUEL1, DORSAF KERFAHI2, JONATHAN M. ADAMS2 & NORAZIAH M. ZIN1

1Biomedical Science Program, School of Diagnostic and Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
2Department of Biological Sciences, Seoul National University, Seoul, Republic of Korea

Author’s e-mail: emmanok@kasu.edu.ng

Plants-associated microbes have increasingly attracted studies on their ecological importance and human uses (medicine, agriculture, and industries) but little is known about their community structure and host species specificity within plant organs (leaf, stem, root) and surrounding soil. Using the V3 hypervariable region of bacterial 16S rRNA gene on MiSeq Illumina platform, we aimed at characterizing the rhizosphere and endophytic bacterial community structure, assembly dynamics and host species specificity of three medicinal plants (Sanitria apiculata, Microdesmis cesearifolia and Rothmannia apiculata) sampled from UKM reserved forest in Bangi, Malaysia. In addition, cultivable bacteria were isolated using low nutrient media and those producing antibiotics active against ESKAPE pathogens were partly characterized. Grouping the overall sequences obtained revealed that Firmicutes (64.3%) and Proteobacteria (34.4%) were the relatively abundant phyla in all habitats. Actinobacteria, unclassified, and other bacteria phyla were also found albeit in lower abundance. The alpha diversity (Simpson and Sobs richness) were moderately high and varied for rhizosphere habitat compared to plant organs. Employing Tukey’s HSD test followed by Benjamini-Hochberg correction for multiple comparisons, the alpha diversity indices showed significant diversity within each plant habitats and across rhizosphere bacterial communities. These reveal that the communities were apparently structured, varied and specified. We can infer from the results that although the communities associated with the plant habitat shared some bacterial species, the associated communities differed in structure and diversity. From all cultivable isolates screened against ESKAPE pathogens, twenty-four isolates produced compounds active against either one or more of these pathogens which were not susceptible to some mainstay antibiotic.

ID72 - The Role of p38α MAPK in Trifluoromethoxy-Goniothalamin-Induced Chronic Myeloid Leukemia K562 Cells Apoptosis

PANG KOK LUN1, CHAN KOK MENG2, JEAN-FREDERIC FAIZAL WEBER3 & SALMAAN HUSSAIN INAYAT-HUSSAIN4

1Biomedical Science Program, School of Diagnostic & Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
2Environmental Heath & Industrial Safety Program, School of Diagnostic & Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
3Institute of Natural Products for Drug Discovery, Faculty of Pharmacy, Universiti Teknologi Mara, Malaysia
4Petroleum Nasional Berhad (PETRONAS), PETRONAS KL Twin Tower, Malaysia

Author’s e-mail: pangkoklun@gmail.com

Molecular pathophysiology of chronic myelogenous leukemia (CML) is associated with the expression of oncogenic Bcr-Abl chimeric protein of which the product of reciprocal chromosomal translocation t(9;22)(q34.q11). Bcr-Abl protein exhibits activated tyrosine kinase activity which contributes to the cellular transformation and chemotherapeutic drug resistance. Styryllactone, the secondary metabolite of Goniothalamus plant, serves as a potential chemotherapeutic drug candidate due to its antiproliferative and apoptosis-inducing potencies. We previously demonstrated that a novel synthetic styryllactone namely Z-6-[2-(4-trifluoromethoxy-phenyl)-vinyl]-5,6-dihydropyran-2-one or in short trifluoromethoxy-goniothalamin (TFGN) induced intrinsic pathway of apoptosis in K562 cells. Thus, our current study is aimed to further identify the early involvement of mitogen-activated protein kinases (MAPKs) inclusive of p38, c-Jun amino-terminal kinase (JNK) and

Nurturing Excellence in Health Science Research and Publication
extracellular signals-regulated kinase (ERK) in TFGN-induced apoptosis. We demonstrated that there are early activation of p38, JNK and ERK upon TFGN treatment. Specific MAPKs inhibition revealed that JNK and ERK activation were not crucial in TFGN-induced apoptosis. Interestingly, TFGN-induced apoptosis was dependent on p38 MAPK activation specifically via the activity of p38α isoform. In conclusion, TFGN induced early p38α MAPK-dependent apoptosis in K562 cells. These findings provide new insights with regards to chemotherapeutic potency of TFGN and potential role of p38α MAPK as therapeutic targets in CML.

ID73 - Clonogenic and Toxicogenomic Profile of Murine Hematopoietic Stem/Progenitors Cells in Non-Cytotoxic 1,4-Benzquinone Exposure

PAIK WAH CHOW1,5, ZARIYANTEY ABDUL HAMID1,5, NOR FADILAH RAJAB1,5, KIEN HUI CHUA2, KOK MENG CHAN3,5 & SALWATI SHUIB4

1Biomedical Science Program, School of Diagnostic & Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
2Department of Physiology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Cheras, Kuala Lumpur
3Environmental Health and Industrial Safety Programme, School of Diagnostic & Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
4Department of Pathology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Cheras, Kuala Lumpur
5Toxicology Laboratory, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: paikwah87@hotmail.com

Previous studies demonstrated that low dose benzene exposure is hematotoxic and genotoxic but its mechanism on targeting the hematopoietic stem and progenitor cells (HSPCs) remains understudied. This study aims to characterize the effects of non-cytotoxic benzene exposure on clonogenicity of lineages-committed progenitors, the expression of self-renewal and differentiation-related genes, and chromosomal status of exposed-HSPCs. Mouse bone marrow cells (BMs) were exposed ex vivo to benzene metabolite, 1,4-benzoquinone (1,4-BQ) at 1.25 and 2.5 μM for 24 h. The clonogenicity of erythroid, myeloid, and Pre-B lymphoid progenitors were evaluated using colony-forming-cell assay. The expression of interest genes was analyzed by quantitative real time-PCR. Chromosomal status of exposed-HSPCs was determined via karyotyping assay. 1,4-BQ exposure lowered the myeloid progenitor’s clonogenicity (p < 0.05). Furthermore, HoxB4 expression level was significant upregulated at all concentrations while GATA3 expression was significantly upregulated at 2.5 μM. Meanwhile, 1,4-BQ induced chromosomal aberration (p < 0.05) on BMs, erythroid-, myeloid-, and Pre-B lymphoid progenitors predominantly via Robertsonian translocation. In conclusion, non-cytotoxic concentrations 1,4-BQ could modulate the HSPCs’ fate by altering the self-renewal- and differentiation-related genes and inducing chromosomal aberration. The definite role of lineages specificity and genomic alteration in non-cytotoxic 1,4-BQ exposure targeting HSPCs niche deserve further investigation.
ID75 - Optimisation of Late-PCR Parameters for Detection of Invasive Fungal Pathogens

DHAYAALINI BALA GOPAL, JACINTA SANTHANAM, CHUA ANG LIM & TZAR MOHD NIZAM KHAITHIR

Biomedical Science Program, School of Diagnostic & Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: dalni_23@hotmail.com

Polymerase chain reaction (PCR) based detection has been extensively used to detect and identify pathogenic fungi for the past few decades. Asymmetric PCR preferentially amplifies one DNA strand in a double-stranded DNA template and is used in DNA hybridization studies. Linear-After-The-Exponential-PCR (LATE-PCR) is an advanced asymmetric PCR method using primers at different concentrations, with innovative primer design to assure high efficiency and specificity. DNA hybridisation assay may be used to detect amplified single strand DNA of fungal pathogens. In the present study, we optimised LATE-PCR parameters to amplify and produce single strand DNA of major invasive fungal pathogens including Candida spp. and Aspergillus spp. The conserved fungal internal transcribed spacer (ITS) region was used to design limiting primer (ITS 4) and excess primer (ITS 1) for the LATE-PCR. Aspects such as the number of PCR cycles, concentration of genomic DNA, concentration of limiting and excess primers, concentration of MgCl₂, concentration of Taq polymerase and PCR cycles at different annealing temperatures were assessed to optimize the LATE-PCR. Observation from gel electrophoresis following LATE-PCR showed smaller band size on the gel compared to the usual band size of conventional PCR product indicating the presence of single stranded DNA product. Sequencing of the DNA product, followed by BLAST sequence-based query search, showed high alignment score between the LATE-PCR product with the target fungal DNA. In conclusion, this advancement of PCR could lead to a greater achievement in developing a rapid PCR-based detection assay in diagnosing clinical fungal pathogens in the future.

ID80 - Effect of HIIT Intervention Programs on PGC-1α and Adiponectin Receptor Genes Expression Among Obese Individuals

NUR HIDAYAH ASILAH ZA’DON¹, AMIRUL FARHANA MUHAMMAD KAMAL², FARHANIM ISMAIL³, MUHAMMAD AFFIFURRAHMAN JAMLUS⁴, NOR SARAWATI MUHD NAZRİ¹, NOR FARAH FAUZI¹, MAHENDRAN APPUKUTTY⁵, SHARIFAH IZWAN TUN OTHMAN⁵ & ARIMI FITRI MAT LUDIN¹

¹Biomedical Science Program, School of Diagnostic & Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
²Faculty of Biomedical and Health Science, Universiti Selangor, Selangor Darul Ehsan
³Occupational Therapy Program, School of Rehabilitation Science, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
⁴Faculty of Sport Science & Recreation, Universiti Teknologi MARA, Shah Alam, Selangor

Author’s e-mail: hidayahasilahzadon@gmail.com

High Intensity Interval Training (HIIT) has been reported to stimulate gene activity, improve body composition and reduce cardiometabolic risk factor in overweight and obese individuals. A single session of HIIT has been showed adequately stimulates transcriptional activation in PGC-1α and adiponectin receptor genes. Purpose: The aim of this study is to investigate the effect of a 12-weeks HIIT intervention on PGC-1α and adiponectin receptor genes expression among overweight and obese individuals. This randomized controlled trial study recruited 20 overweight and obese individuals. They were randomly and equally assigned into Intervention and Control groups. Intervention group underwent HIIT exercise 3 sessions per week, lasted an hour per session for 12 weeks with no diet modification. Meanwhile, the participants in the control group were asked to maintain their daily physical activities and diet throughout the same period. Anthropometric measurement, blood pressure and gene expression analysis were measured at baseline and after 12 weeks intervention. Data were analysed
using mixed designed ANOVA. Gene expression is considered significantly different when the ΔΔCT exceeding 2-fold change. Subjects age are 29.30 ± 5.81 years and 28.70 ± 6.147 years while BMI are 29.35 ± 3.29 kg/m² BMI 28.44 ± 3.34 kg/m² for intervention and control groups respectively. HIIT increased the expression of adiponectin receptor gene by 4-fold and downregulated PGC 1-α by 2-fold. There were significant reduction in body weight, BMI, WHR (p<0.001) and systolic blood pressure (BP) (p<0.01) in intervention group as compared to control. Meanwhile, no significant change was noted in other parameters. Findings from current study indicate that HIIT is an appropriate exercise program to stimulate PGC 1-α and Adiponectin receptor genes expression, improve anthropometric indicators and blood pressure.

ID81 - Effects of Tropical Fruit Juice Mixture Supplementation on Behavioural, Biochemical and Histological of Neurotoxicity-Induced Rat

MUNIRAH AHMAD MUNAWAR
Biomedical Science Program, School of Diagnostic and Applied Health Sciences, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: munirah_munawar@ymail.com

An increase of oxidative stress by excessive release of harmful reactive oxygen and nitrogen species (ROS and RNS) promotes neuronal damage and may progress to neurodegeneration. Studies on animals and humans have shown that polyphenol rich fruits provide beneficial effects in a large array of degenerative diseases. However, little is known about the efficacy of polyphenol rich tropical fruits especially as neuroprotectives agent. Thus, this study was aimed to determine the effects of tropical fruit juice mixture (pomegranate, white guava and roselle) on biochemical, behavioural and histological changes of β-amyloid-induced rats. Forty Wistar male rats around 180 to 200g were divided into five groups; dPBS (sham-operated control), dAβ (β-amyloid control), JPBS (juice mixture), JAβ (juice mixture and β-amyloid), and IBFAβ (Ibuprofen and β-amyloid). Treatment of tropical fruit juice mixture (JAβ) and Ibuprofen (IBFAβ) were orally given daily for four weeks at dosage of 5 ml/kg BW and 10 ml/kg BW, respectively, followed by infusion of β-amyloid (0.1 ml/mg) intracerebroventricularly (i.c.v.) for two weeks. In both behavioural (Novel Object Recognition and Open Field Test) determinations, there was a significant time effect following β-amyloid infusion at day-7 as compared to day-14; with F (1, 7) = 6.940, p<0.05 and F (1, 7) = 7.152, p<0.05. Plasma Corticotropin Releasing Hormone concentration of JAβ group vs. control was also lowered significantly (p<0.01) which contributed to lowering of depression level. Furthermore, the iNOS expression was also reduced significantly (p<0.01) in the brain of JAβ group vs. dAβ group in protection of neuroinflammatory condition induced by β-amyloid. Neuronal count at the cornus ammonis (CA1) of hippocampus in the JAβ group also was higher vs. control (p<0.05) which indicates less neuronal damage. Collectively, tropical fruit juice mixture could improve both locomotor and cognitive functions, suggesting that it has the potential as a neuroprotective agent in the brain.

ID86 - Factors Affecting Quality of Life Among Special Needs Children in Kelantan – The Malaysian Perspective

MUHAMMAD FAIZ MOHD ISMAIL1, ISMARULY USDA ISHAK1, NORMAH CHE DIN2, SYARIF HUSIN LUBIS2, NUR ZAKIAH MOHD SAAD3 & SITI NOR ISMALINA ISA3

1Biomedical Science Program, School of Diagnostic and Applied Health Sciences, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur
2Clinical Psychology Program, School of Healthcare Science, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: muhammadfaiz2387@gmail.com

Quality of Life (QOL) improvement involves changes in society, livelihood and social system of a state that is considered unsatisfactory to a better situation. This study was conducted to determine the factors affecting QOL of special needs childrens age 8 to 18 years old in Kelantan, Malaysia. This cross-sectional study interviewed 130 parents and caregivers of special needs students using a questionnaire that consisted of demographic and

Nurturing Excellence in Health Science Research and Publication 14 | P a g e
socio-economic factors of respondents. Paediatric Quality of Life (PedsQL™) inventory was used to assess the quality of life of special needs students through their parents or caregivers. Data analysis involved One-way Analysis of Variance, *Pearson Product-Moment Correlation* and Multiple Linear Regression. Parents educational background was seen to have a significant impact on special needs children’s quality of life (*p* = 0.05) where the post-hoc Tukey test showed a significant difference at *p*=0.02 between the group of parents who never went to school and parents with primary school. Pearson Correlation analysis showed special needs students’ IQ score (*r* = 0.314; *p* <0.05) and family monthly income (*r* = 0.218; *p* = 0.013) have positive correlation on special needs children’s quality of life. Multiple linear regression analysis (R square =.200) showing 20% change of variance in QOL can be explained by type of disabilities, IQ score and parents’ educational background. In conclusion, IQ score and parents’ educational background need to be taken into account in ensuring improvements to quality of life of special needs students.

**ID90 - The Potential of *Alocasia Denudata* Engler Stem Extracts as a Wound Healing Agent**

SITI AISYAH ARSHAD, ASMAH HAMID, FARAH WAHIDA IBRAHIM & MAZLYZAM ABDUL LATIF

Biomedical Science Program, School of Diagnostic & Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: aisyaharshad@yahoo.com

*Alocasia denudata* Engler came from the Araceae family in which its stem juice is known to possess wound healing properties. A large number of cutaneous effects from plant-based traditional medicine have been reported. However, the findings are not well corroborated due to lack of clinical trials and toxicity testing. This study aimed to 1) analyse the elemental composition in *A. denudata* aqueous extract, 2) identify the presence of active compounds in *A. denudata* aqueous extract, and 3) determine the cytotoxicity of *A. denudata* extract in human dermal fibroblast cell line. The proximate element composition was assessed from freeze-dried sample of *A. denudata* aqueous extract using scanning electron microscope. The active compounds of *A. denudata* aqueous extract were analyzed using Gas Chromatography-Mass Spectrometry (GCMS) and Liquid Chromatography-Mass Spectrometry (LCMS). The cytotoxicity of the extract was determined using MTT-assay. Elemental screening showed the presence of oxygen, carbon, potassium, chlorine and sodium. GCMS analysis of the aqueous extract showed the presence of 9-octadecanamide (Z), octadecanoic acid-methyl ester, benzyl methyl disulphide as the major components. Whereas, LCMS analysis revealed the presence of propanoic acid and 2-hydroxy-, methyl ester as the major components. All the identified component listed are reported to be conducive for wound healing process. The MTT-assay revealed that *A. denudata* did not exert any cytotoxic effect against HDF cells. In conclusion, the aqueous extract of *A. denudata* is not cytotoxic and furthermore, have the properties that can enhance wound healing process. Thus, this plant has the potential to be developed as a wound healing agent.

**ID91 - The Protective Effect of *Zingiber zerumbet* L. (Smith) Extract on the Alzheimerism-induced Rats**

ASMAH HAMID, FARAH WAHIDA IBRAHIM, MAZLYZAM ABDUL LATIF & NORELINA EUSOFF

Biomedical Science Program, School of Diagnostic and Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: elinaeusoff@gmail.com

Alzheimer’s disease (AD) is a progressive neurodegenerative disorder and oxidative stress has been shown to contribute to its early progression. *Zingiber zerumbet* (L.) Smith or locally known as ‘Lempoyang’ has been shown possess antioxidant activities. This study was aimed to investigate the possible protective and therapeutic effect of *Zingiber zerumbet* ethyl acetate extract on Alzheimerism-induced rats. Adult male Sprague Dawley
(180–200g, n=80) were used in this study and were divided into 10 groups (n=8) for protective and therapeutic studies. For the protective study, Group 1: negative control and Group 2: Alzheimersm-induced group, rats given normal saline. Group 3-4: rats given Zingiber zerumbet ethyl acetate extract (200 and 400 mg/kg/day respectively). Group 5: positive control rats given N-acetyl cysteine (NAC) (20 mg/kg/day) for 2 weeks. All groups concomitantly treated with AlCl₃ (17 mg/kg) for another four weeks. As for protective study, Group 6: negative control group given normal saline. Groups 7-10: rats given AlCl₃ (17 mg/kg). Group 7-10: 2nd, 3rd, 4th, and 5th, rats were then given normal saline, Zingiber zerumbet ethyl acetate extract (200 and 400 mg/kg/day respectively) and N-acetyl cysteine (NAC) (20 mg/kg/day) after the induction of AlCl₃ for four weeks. Behavioural test of the open field in which central time spend parameter were done at baseline, before treatment and after treatment. The rats were then sacrificed at the end of experiment and the brain homogenate was used for biochemical tests. The result showed Zingiber zerumbet ethyl acetate extract at 400 mg/kg showed protective effect by increasing activity of central time spent indicated improved memory impairment in open field test (p<0.05). The same dosage was also found to significantly reduced the level of acetylcholinesterase marker (p < 0.05) in brain homogenate. This study revealed that the protective effect of Zingiber zerumbet ethyl acetate extract at 400 mg/kg has the potential to ameliorate the neurodegenerative characteristics of Alzheimerism in rats.

Methicillin-resistant Staphylococcus aureus (MRSA) was initially limited to hospital and healthcare facilities but has gradually become a growing problem in healthy children and adult. Pterostilbene belongs to the phenylpropanoid phytoalexin which is involved in plant response to various pathogen and herbivores attack. The aim of this study was to evaluate the anti-MRSA action of pterostilbene in combination with selected antibiotics such as vancomycin, linezolid and oxacillin against MRSA ATCC 43300 and ATCC 33591. The minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) of individual antimicrobial agents were determined using microdilution checkerboard (MDC) assay was employed to verify the type of interaction of the combined agents from the fractional inhibitory concentration (FIC) index values. Time- kill assay (TKA) analysis and post-antibiotic effect (PAE) time were determined only on the combination which showed synergistic interaction. Cell morphology and ultrastructural changes of the treated and untreated strains were also observed. The MIC and MBC of pterostilbene against both ATCC 33591 and ATCC 43300 were 31.25μg/ml and 62.50μg/ml, respectively. This indicated that pterostilbene was bacteriostatic against both strains. MDC results showed that pterostilbene-oxacillin combination exhibited lowest FIC value (0.56) for both strains which implies partial synergistic interaction. On the other hand, combination of pterostilbene and vancomycin generated an additive effect (FIC 1.00) whereas pterostilbene-linezolid combination displayed indifference effects with FIC of 1.25 against both strains. Despite the partial synergism, TKA proved an additive effect for the combination of pterostilbene and oxacillin against both strains with time-dependent bacteriostatic action within 24 hour. After one hour exposure at 10X-MIC, prolonged PAE time of 2.6 ± 1.48 hour against ATCC 33591 was demonstrated by pterostilbene-oxacillin combination treatment compared to pterostilbene (2.02 ± 0.36 hour) and oxacillin (0.53 ± 0.28 hour) alone. Pterostilbene was shown to prolong the PAE time of oxacillin against ATCC 43300 significantly from 0.57 ± 0.60 to 1.85 ± 0.95. Results also showed significant mean difference (p<0.05) for the time value of PAE between oxacillin alone with pterostilbene alone and combination treatment for both strains. Scanning and transmission electron microscopic observations revealed that pterostilbene targeted the cell wall which is the same site of action as oxacillin hence additive effects by the combination treatment. In conclusion, pterostilbene in combination with oxacillin showed partial synergism with bacteriostatic and persistent antimicrobial effect against both MRSA strains. Therefore, pterostilbene has the potential to be developed as an alternative phytotherapeutic agent against MRSA infections.
ID104 - Immunomodulatory Effects of *Canarium odontophyllum* Miq. Leaves Aqueous Extract in Streptozotocin-Induced Diabetic Rats

**SHAFIKHA, M. S., NOR MALIA, A. W., SITI BALKIS, B. & DAYANG FREDALINA, B.**

Biomedical Science Program, School of Diagnostic & Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: sshafikha@rocketmail.com

Type I diabetes mellitus is a chronic disease characterized by hyperglycemia due to insulin deficiency. Hyperglycemia is the main factor for altered immune system that causes diabetic patients more susceptible to infections. *Canarium odontophyllum* (CO) leaf is proven to possess phytochemical compounds with potential as antibacterial and anticancer agents. This study was undertaken to evaluate the immunomodulatory effects of CO leaves aqueous extract in streptozotocin (STZ)-induced diabetic rats. Male Sprague Dawley rats were induced for diabetes by a single intraperitoneal injection of 65 mg/kg STZ. Treatment with CO leaves extract (300 mg/kg/day) was given orally via gavage for 28 days. Spleen was harvested for analysis of lymphocyte count using flow cytometry; and determination of lymphocyte function using *in vitro* proliferation assay and cytokine detection. The results showed that treatment with CO extract decreased blood glucose level significantly (p<0.05) in diabetic rats. The percentage of CD3+CD4+ T lymphocytes in diabetic rats was significantly higher (p<0.05) than control rats. However, there was no significant difference in the percentage of CD3+CD4+ T lymphocytes between the CO treated diabetic group and diabetic group. The percentages of CD45RA+B lymphocytes, CD3+CD8+ and CD4+CD25+ T lymphocytes were unaltered in all of the experimental groups. Functional assessment of splenocytes using proliferation assay stimulated by Concanavalin A and lipopolysaccharide showed a significant proliferation (p<0.05) in the diabetic group compared to the control group. Despite that, the cell proliferation in CO treated diabetic group has no significant difference as compared to the diabetic group. The level of IFN-γ showed no difference among all experimental groups. Histological observation of spleen showed no pathological alteration in all experimental groups. In conclusion, aqueous extract of CO leaves has antihyperglycemic activity but does not affect splenic immunomodulatory activity directly in the diabetic rats after 28 days.

ID106 - Bactericidal Activity and Interaction of Pterostilbene and Standard Antibiotics Combination against Human Pathogenic Bacteria

**LEE, W. X., GHAZALI, A. R. & BASRI, D. F.**

Biomedical Science Program, School of Diagnostic & Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: wee.xian@hotmail.com

The in vitro antibacterial activity of pterostilbene in combination with gentamicin against 6 strains of Gram-positive and Gram-negative bacteria was investigated. The minimum inhibitory concentration and minimum bacterial concentration of pterostilbene were determined using microdilution technique whereas the synergistic antibacterial activity of pterostilbene in combination with gentamicin were assessed using checkerboard assay and time-kill kinetic study. The result of the present study showed that the combination effects of pterostilbene with gentamicin were synergistic (FIC index < 0.5) against three susceptible bacteria strains: *Staphylococcus aureus* ATCC 25923, *Escherichia coli* ATCC 35150, and *Pseudomonas aeruginosa* 15442. However, the time-kill study showed that the interaction was indifference which did not significantly differ from gentamicin treatment. Furthermore, time-kill study showed that the growth of the tested bacteria was completely attenuated with 2 to 8 hours treatment with 0.5 X MIC of pterostilbene and gentamicin. The identified combinations can be of potent therapeutic value against bacteria infections. These findings have potential implications in delaying the development of resistance as the antibacterial effect is achieved with lower concentrations of antibacterial agents.
**ID109 - Neuroprotective Effect of Zingiber zerumbet Ethyl Acetate Crude Extract against Aluminium (III) Chloride-induced Alzheimerism in H19-7 Hippocampus Cells**

NAZIR NASROM, FARAH WAHIDA IBRAHIM, MAZLYZAM ABDUL LATIF & ASMAH HAMID

Biomedical Science Program, School of Diagnostics and Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: nazirnasrom@gmail.com

Alzheimer’s disease (AD) is a progressive cognitive impairment affecting a large proportion of the aging population. To date there is no specific drugs to treat and to delay the onset of the Alzheimer’s disease. *Zingiber zerumbet* (L.) Smith belongs to the Zingiberaceae family and locally known as ‘Lempoyang’. The crude extract of the rhizome has the potential to be developed as a neuroprotective agent as it has been reported to possess both antioxidant and anti-inflammatory activities. Exposure to aluminium (III) chloride (AlCl$_3$) has been known to be one of the risk factor for Alzheimer’s disease. Therefore, this study was conducted to determine the cytotoxic effect of *Z. zerumbet* crude extract and AlCl$_3$ on H19-7 hippocampus cells and to evaluate the protective effect of *Z. zerumbet* crude extract against AlCl$_3$ induction. This is important to establish the *in vitro* model of Alzheimer. The cytotoxicity of *Z. zerumbet* crude extract and AlCl$_3$ were determined via MTT assay. After 24 hrs of initial seeding, the H19-7 cells were separately treated with *Z. zerumbet* extract at both concentrations identified. At 2-hr and 5-hr post-treatment, the cells were induced with 3000 µg/ml AlCl$_3$. The viability of the cells was analyzed at 24-hr post-induction. IC$_{10}$ (41.91µg/ml) and IC$_{25}$ (59.26 µg/ml) concentrations of the *Z. zerumbet* extract were identified. At 2-hr of *Z. zerumbet* treatment, the viability of the cells at both IC$_{10}$ + AlCl$_3$ (99.89%) and IC$_{25}$ + AlCl$_3$ (37.91%) was significantly higher than the AlCl$_3$ control group (27.68%). Whereas, for the 5-hr treatment, the viability of the H19-7 cells at IC$_{10}$ + AlCl$_3$ (80.24%) was significantly higher than the AlCl$_3$ control group (19.43%). In conclusion, 2 hours treatment ethyl-acetate extract of *Z. zerumbet* for both IC$_{10}$ and have the ability to protect the H19-7 hippocampus cells against AlCl$_3$-induced toxicity *in vitro*.

**ID126 - Pattern of Hospital Admission cases for Cardiovascular Diseases in relation to Urban Air Pollution in Cheras, Kuala Lumpur, Malaysia**

MUHAMMAD ABDUL BASIT AHMAD TAJUDIN

Fakulti Sains Kesihatan, Universiti Kebangsaan Malaysia

Author’s e-mail: abdulbasit@siswa.ukm.edu.my

The air quality in Malaysia have been declining due to many factors such as urbanisation, natural sources and also trans-boundary. The decrease in air quality tends lead to the declining health of the population mainly causing respiratory and cardiovascular illness and thus reduces the productivity of the nation. In response to this problem, the study aims to investigate the pattern of the air pollutants with cardiovascular disease cases at the UKM Medical Centre and determine their associations from year 2010 till 2014. The Air Quality and Meteorological data from 2010 till 2014 were obtained from the Department of Environment (DOE) Malaysia. Data for Cardiovascular Cases were obtained from the Hospital Admissions record at the UKM Medical Center for year 2010 till 2014 and the data was manually collected from the Emergency Room Department for the year 2013. The air quality results showed a peak for NO$_2$ and PM$_{10}$ which exceeds the Malaysia Ambient Air Quality Standard 2015 at a concentration of 75µg/m$^3$ and 150µg/m$^3$ respectively. The total number of adult cardiovascular cases shows a 9:1 ratio relative to pediatric cases. The highest daily mean recorded was in 2013 where adult cases were at an average of 9.63 cases per day.
ID127 - The Effect of *Hibiscus Sabdariffa* Linn. Polyphenol Rich Extract (HPE) on Oxidative Stress of Heart in Streptozotocin (STZ) Induced Diabetic Rats

TG. NURUL TASNIM TG, NOR Effendi Kamaruddin, Siti Balkis Budin & Satirah Zainalabidin

Biomedical Science Program, School of Diagnostic and Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: nurultasnim91@gmail.com

Diabetes mellitus is a chronic disease that is characterized by high level of plasma glucose. This condition leads to macrovascular complications mainly cardiovascular diseases which is the leading cause of morbidity and mortality in diabetic patients. In diabetes, oxidative stress plays a key role in causing cardiac complication. The aim of this study is to determine the effect of *Hibiscus sabdariffa* polyphenol rich extract (HPE) on plasma lipid profile and on oxidative stress of heart in streptozotocin (STZ) induced diabetic rats. Forty male *Sprague Dawley* rats (250-300g) were divided into four groups which are control, diabetes mellitus (DM), diabetes mellitus + *Hibiscus sabdariffa* polyphenol rich extract (DM+HPE), and diabetes mellitus + metformin (DM+MET). HPE and metformin was given at the dose of 100 mg/kg and 150 mg/kg daily respectively through oral force feeding for 28 consecutive days. At the end of study period, the blood was collected prior sacrifice and the heart was taken for biochemical tests. Statistical analysis shows that plasma glucose reduced significantly (p<0.05) in DM + HPE group compared to DM group. For oxidative stress marker, glutathione (GSH) level and superoxide dismutase (SOD) activity in DM + HPE group are significantly increase (p<0.05) compared to DM group. In conclusion, this study suggests that HPE has the potential as antioxidant and antihyperlipidemic by reducing oxidative stress and improving the hyperlipidemic condition in STZ induced diabetic rats.

ID128 - Determination of Health Status and Physical Fitness among Malaysian Firefighters

Nur Aliyaa Natasya Mohamad Zulkafl1, Nihayah Mohammadi, Noor Ibrahim Mohamed Sakiandi, Nor Fadilah Rajab1, Zurkarnain Mohd Kassim1 & Jamri Masran1

1Biomedical Science Program, School of Diagnostic and Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

2Occupational Therapy Program, School of Rehabilitation Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

3Fire and Rescue Department of Malaysia

Author’s e-mail: aliyanatasya@gmail.com

Firefighters are working under occupational environments which demand physical operations to perform energy-consuming activities. This study aims to determine the health status and physical fitness among Malaysian firefighters. A cross-sectional study was conducted on 216 firefighters from five states in Peninsular Malaysia. Demographic data were gathered using questionnaires while the blood samples were taken for health assessment composed of levels for glucose, total cholesterol, high density lipoprotein, low density lipoprotein and triglyceride. Physical fitness was evaluated via physical tests comprised of hand grip, sit-and-reach, one-minute sit-ups, one-minute push-ups and 20-meter shuttle run. The results showed that 67.1% of the firefighters have a body mass index (BMI) higher than the normal range (≥25.00). Glucose level showed 44.0% of subjects were in the prehyperglycemic category (5.56-6.98mmol/L). A total of 50.0% of the firefighters have high total cholesterol level (≥6.20mmol/L), 96.8% with high level of HDL (≥1.55mmol/L), 17.1% at borderline level of LDL (3.35-4.11mmol/L) and only 13.9% at borderline level for triglyceride (1.70-2.25mmol/L). For one-minute
sits-ups and sit-and-reach tests, 100% (n=216) and 55.6% (n=97) of subjects scored as excellent, respectively. Meanwhile, 54.2% (n=116) subjects scored average for one-minute push-ups. About 91.2% (n=197) and 79.1% (n=171) of subjects had poor scores for hand grip strength and VO₂max, respectively. BMI showed negatively significant correlation with push-ups (r=-0.402, p<0.01), sit-ups (r=-0.405, p<0.01) and VO₂max (r=-0.581, p<0.01) but positively significant correlation with triglyceride (r=0.235, p<0.01). VO₂max showed significant negative correlation with glucose (r=-0.199, p<0.01) and triglyceride levels (r=-0.202, p<0.01). Overall, this study provides foundation for future establishment of health and wellness programs towards sustainable and improvement in the physical and health status among the Malaysian firefighters.

ID129 - Isolation and Identification of Pathogenic Leptospira from the Environment and Carrier Animal Hosts in Johor and Negeri Sembilan

NUR ATIRA AMARUDIN

Environmental Health and Industrial Safety Programme, School of Diagnostic and Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: atira_amarudin@yahoo.com

Leptospirosis is a serious zoonotic disease worldwide. This disease is caused by Leptospira interrogans. Due to the wide host range, determining the prevalence of pathogenic serovars in the environment, animal and human hosts is of utmost importance. This study was conducted to investigate the transmission of Leptospira from the environment especially animal hosts to humans. The samples were collected from Negeri Sembilan and Johor. This study focused on determination of virgin leptospirosis case (VLC) from the outbreak notification, identification of pathogenic leptospiral serovars in water and soil samples and identification of animal reservoirs that carry the pathogens in blood and urine samples. Blood and urine samples collected from VLC were analysed to confirm the presence of Leptospira and identify the leptospiral serovar. The results were then used to determine the location of outbreak and sampling. Environmental samples (water and soil) and biological samples (kidney, liver, blood and urine) derived from animal hosts were also analysed for identification of pathogenic serovar. Identification of pathogenic serovar was carried out using dark-field Microscopic Agglutination Test (MAT) and polymerase chain reaction (PCR). As a conclusion, this study helped to establish the understanding on transmission of Leptospira from the environment especially animal hosts to humans.

ID130 - The Efficacy of Piper aduncum (Piperales: Piperaceae) Essential Oil against Housefly Musca domestica (Diptera: Muscidae) in Laboratory

HIDAYATULFATHI OTHMAN & NOR AZWANI MOHAMED NOR

Biomedical Science Program, School of Diagnostic and Applied Health Sciences, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: azwanimohamednor90@gmail.com

Housefly Musca domestica is an important mechanical vector for pathogen transmission such as bacteria, virus, protozoa and helminths. Most common synthetic insecticide used for controlling M. domestica are organophosphate, carbamate, organochlorine and pyrethroid. However, prolonged use of these insecticides has become problematic due to insecticide resistance. The trend now is going back to use the botanical extracts to overcome this problem. Studies showed that Piper aduncum (P. aduncum) essential oil exhibit insecticidal properties against M. domestica. Therefore, this study was conducted to determine effective dose (ED₅₀ and ED₉₀) of P. aduncum essential oil against M. domestica. The effective dose of essential oils against M. domestica was determined by topical application method. A stock solution was made by mixing 1 g P. aduncum essential oil and 1 ml acetone. The stock solution was then diluted with distilled water to produce concentration of 40 000 ppm, 60 000 ppm, 80 000 ppm and 100 000 ppm. An amount of 1 µl P. aduncum essential oil was applied topically on the dorsal thorax of female houseflies (n=20) (strain WHO I2J2) using micropipette. The mortality of female houseflies was observed 48-hours post-treatment. The value of effective dose was determined by using Probit Analysis Raymond (1985). The value of ED₅₀ and ED₉₀ for P. aduncum essential oil
were 99702.4 ppm (92901.9-110216.5) and 244773.7 ppm (194317.2-358514.0), respectively. The value of active ingredient in commercialized positive control of Alpine WSG is 40%. As the conclusion, The ED$_{90}$ value obtained from this study can be used for further development of *P. aduncum* essential oil as insecticide against *M. domestica*.

ID136 - Molecular Mechanisms of BK3C231-Induced Cytoprotection in RAW 264.7 Macrophages and Normal Human Colon Fibroblast CCD-18Co Cells

TAN HUAN HUAN$^1$, CHAN KOK MENG$^{1,2}$, KEE CHIN HUI$^{3,4}$, NOEL F. THOMAS$^3$

& SALMAAN HUSSAIN INAYAT-HUSSAIN$^5$

$^1$Toxicology Laboratory, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

$^2$Environmental Health and Industrial Safety Program, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

$^3$Department of Chemistry, Faculty of Science, University of Malaya, Kuala Lumpur

$^4$Center for Natural Products Research and Drug Discovery (CENAR), Department of Chemistry, Faculty of Science, University of Malaya, Kuala Lumpur

$^5$Petroliam Nasional Berhad (PETRONAS), PETRONAS Twin Towers, Kuala Lumpur City Centre, Kuala Lumpur

Author’s e-mail: huan2_koopy@hotmail.com

Anti-inflammatory as well as preservation of DNA integrity and mitochondrial function are crucial cytoprotective mechanisms which confer therapeutic role in preventing oncogenesis. Stilbene (1,2-diphenylethylene) is a natural compound synthesized by plants in response to stress or microbial infection with its derivatives exhibits potent anti-cancer property. In this study, (E)-N-(2-(3,5 Dimethoxystyryl)phenyl)furan-2-carboxamide (BK3C231), a novel stilbene derivative is investigated on its chemopreventive activities via the anti-inflammatory effects on lipopolysaccharide (LPS)-stimulated RAW 264.7 macrophages and the cytoprotective effects on cellular DNA and mitochondria in 4-Nitroquinoline N-oxide (4NQO)-stimulated normal human colon fibroblast CCD-18Co cells. The expressions of inflammatory proteins namely iNOS and COX-2 in LPS stimulated-cells were determined using immunoblotting while the nitric oxide (NO) level was determined through Griess assay. Flow cytometric assessment of reactive oxygen species (ROS) level was performed using DCFH-DA staining while GSH level was assessed using Ellman’s assay. BK3C231 reduced iNOS and COX-2 expressions as well as NO level in LPS-stimulated RAW 264.7 cells. BK3C231 was also able to decrease LPS-induced ROS level in RAW 264.7 cells but the GSH level was unaffected. Meanwhile, the cytoprotective effect of BK3C231 against 4NQO-induced DNA damage involving DNA single strand break in CCD-18Co cells was determined via Alkaline Comet Assay. The mitochondrial membrane potential ($\Delta \Psi$m) was investigated via Tetramethylrhodamine Ethyl Ester (TMRE) assay and cardiolipin level was measured via Nonyl Acridine Orange (NAO) staining and flow cytometry analysis. BK3C231 significantly reduced the level of 4NQO-induced DNA damage as well as 4NQO-induced losses of $\Delta \Psi$m and cardiolipin in CCD-18Co cells (p<0.05). In conclusion, BK3C231 exerts cytoprotective effects by reducing the LPS-induced inflammation in RAW 264.7 macrophages as well as protecting against DNA and mitochondrial damage in normal human colon fibroblast CCD-18Co cells, indicating its chemopreventive potential which requires further studies.
OPTOMETRY AND VISION SCIENCE (OVS)
ID14 - Training of Low Vision Devices among Visually Impaired Schoolchildren by Special School Teachers

NURSYUHADA JAMALUDIN, ZAINORA MOHAMMED & NORLIZA MOHAMAD FADZIL

Optometry and Vision Science Program, School of Healthcare Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur.

Author’s e-mail: nursyuhan_jama@yahoo.com

Low vision devices (LVD) is commonly prescribed to visually impaired (VI) schoolchildren to assist their reading as part of learning. One of the factors that influenced success of LVD use is systematic training given by special school teachers to the VI schoolchildren. The objective of this study is to compare reading speed of VI schoolchildren before and after administration of LVD training by special school teachers. Twenty-four special school teachers were given a series of training on correct use of LVD. The training comprised of lectures and hands-on workshop on usage, handling and maintenance of LVD. Twenty-four VI schoolchildren were recruited and paired with the teachers for training of LVD in the classroom (in-classroom training). The suitable LVD was prescribed by an optometrist to VI schoolchildren. The in-classroom training was done for 15 minutes/session, 4 times/week for 5 weeks. The teachers carried out the training based on the ‘Modul Rehabilitasi Membaca untuk Murid Ketidakupayaan Penglihatan’ and use a checklist to monitor the schoolchildren’s progress. Reading speed in words per minute (wpm) was measured using UKM validated near chart before and after in-classroom training to determine the effectiveness of the training given by their teachers. Twenty-two teachers completed the training with two drops out at the end of study. About 85% of the teachers completed the checklist at the end of the training. Mean of reading speed of twenty-four VI schoolchildren showed improvement from 55 ± 20 wpm to 87 ± 33 wpm (p<0.001) after in-classroom training. In-classroom training given by the special school teachers improved reading speed among VI schoolchildren. This study suggests that the special school teachers can play a role in giving a LVD training to VI schoolchildren to improve their learning experience.

ID20 - Spatial Characteristics of Foveal Letter Crowding

QAZI MUHAMMAD OMAIR

Optometry and Vision Science Program, School of Healthcare Science, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur.

Author’s e-mail: muhammad_omair34@live.com

When a letter at size threshold is surrounded by flankers, confusion ensues and our ability to recognise the letter reduces, compared to when recognising it when it is presented in isolation. This is known as the crowding phenomenon. The objective of this study was to investigate the effects of different types, numbers and orientation of flankers on the recognition of foveally fixated letters at resolution limits. First, single Sheridan Gardiner letters were presented to the participants using a computer monitor. The viewing distance was chosen such that the participants’ correct response rate ranged between 75% to 80%. Next, the target letter was presented together with different types of flankers, i.e., other letters, flanking bars or a surrounding box. The flankers were arranged horizontally, vertically, or on all four sides of the target letter. The separation between the target letter and flankers were randomised systematically. The performance of the participants to recognise the target letter was measured across these separations. When the target letter was flanked by letter flankers, greater crowding was observed with vertically arranged letter flankers than with horizontally arranged letter flankers. One-way repeated measures ANOVA showed that flanker orientation had significant effects on crowding magnitude \( F_{(2,14)} = 10.54, p = 0.002 \). The effect of target-flanker separation on crowding was highly significant \( F_{(3, 35)} = 62.54, p < 0.0001 \). There was also a significant interaction between flanker orientation and flanker-target distance \( F_{(10, 70)} = 6.540, p < 0.0001 \). When the target letter was flanked by bars, vertically arranged bar flankers show more crowding than horizontally arranged bar flankers. Repeated measures ANOVA showed that there were significant effects of bar orientation \( F_{(2,14)} = 9.43, p = 0.003 \) and separation \( F_{(10, 70)} = 3.95, p < 0.001 \) on crowding magnitude. Crowding also occurred when the target letter was surrounded with a box. The effects of separation between target letter and the surrounding box was
significant \( [F_{(1, 7)} = 56.43, p < 0.001] \). For all flanker types, maximum crowding was observed when the target letter abutted the flankers. There was no significant effects of flanker type on crowding magnitude \( [F_{(1, 46)} = 1.52, p = 0.25] \). However, crowding magnitude elicited by the different flanker types was significantly different depending on the distance between the target letter and the flankers \( [F_{(10,70)} = 3.90, p < 0.001] \). Significant crowding was observed with all three types of flankers when they were abutting the target. It is concluded from the study that of type and orientation the flankers have significant effects on crowding magnitude for letters at size threshold presented at the fovea. The results from this study could be helpful in designing a new vision chart that can elicit better crowding effect than commercially available charts.

**ID21 - Accommodation Response in Malaysian Chinese School Children when Reading Chinese and Roman Characters**

XIAO-HUI WEE, SHARANJEET KAUR, MOHD IZZUDDIN HAIROL & SAADAH MOHAMED AKHIR

Optometry and Vision Science Program, School of Healthcare Science, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: xiaohui_98@hotmail.com

Inaccurate accommodation during near work may lead to myopia development. Since prevalence of myopia is higher in Chinese children, it is possible that Chinese character which consists of more strokes may cause myopia. The aim of this study was to compare the accommodation responses between myopic and non-myopic Chinese school children when reading Roman and Chinese characters. Forty-two Chinese school children (21 moderate myopes and 21 non myopes) aged between 8 to 12 years old were recruited. The children were instructed to view targets (Chinese and Roman characters, 1.15 degrees subtense) which were presented 1m away. Monocular accommodation response was measured using Grand Seiko WR-5100K auto-refractor with stimulus demand ranging from 0D to 4D using trial lenses. Average of three readings from the auto-refractor was taken as the accommodation response. Slope and accommodative error index (AEI) were determined from the accommodation stimulus/response curve. Mean slope for Chinese characters was 0.679 ± 0.237 in myopic children and 0.595 ± 0.24 D in non-myopic children. For Roman letters, mean slope was 0.65 ± 0.23 D in myopic children and 0.603 ± 0.238 D in non-myopic children. Mean AEI in myopic children was 2.433 ± 0.370 D for Chinese characters and 2.50 ± 0.473 D for Roman letters. Mean AEI for non-myopic children was 2.385 ± 0.392 D for Chinese characters and 2.394 ± 0.482 D for Roman letters. There was no significant difference in mean accommodation response slopes and mean AEI for both targets in myopic and non-myopic Chinese school children. The types of character, whether Roman or Chinese, do not affect accommodation response in both refractive group. This probably implies that character type may not play role in myopia development in Chinese children.

**ID23 - Visual Acuity with Luminance-Modulated and Contrast-Modulated Noise Stimuli in a Sample of Population Aged above 50 Years Old**

PUI JUAN WOI, MOHD IZZUDDIN HAIROL & SHARANJEET-KAUR

Optometry & Visual Science Program, School of Healthcare Science, Faculty of Health Science, Universiti Kebangsaan Malaysia Kuala Lumpur

Author’s e-mail: woipuijuan@siswa.ukm.edu.my

The human visual system is sensitive in detecting objects that have different luminance level from their background, known as first-order, or luminance-modulated (LM), stimuli. Our visual system is also able to detect objects that have no difference in luminance from their background, only differing in contrast (or other attributes). Such objects are known as second-order, or contrast-modulated (CM) stimuli. CM stimuli are thought to be processed in higher visual areas compared to LM stimuli, and which may be more susceptible with ageing. We compared visual acuities (VA) of five healthy older adults (56±2.53 years) and five healthy younger adults (25.4±1.29 years) with LM and CM letters under monocular and binocular viewing. VA measured with
LM letters was ~3.5x better than that measured with CM letters for both age groups (p<0.05). For LM, binocular summation ratios ($\frac{VA_{binocular}}{VA_{monocular}}$) were similar for older (1.16±0.21) and younger (1.15±0.06) adults. For CM, younger adults had higher binocular summation ratio (1.40±0.08) compared to older adults (1.12±0.09). Although binocular viewing improved VA with LM letters, it did not give advantage to older adults when resolving CM letters. This could reflect deteriorations of the higher cortical function in older adults, most likely higher than V1 area, which may be missed if measured with luminance-based stimuli alone.

ID31 - Visual Acuity at Different Contrasts in Amblyopes

NOR DIYANA HANI, SHARANJEET-KAUR, NORLIZA FADZIL & MOHD IZZUDDIN HAIRUL

Optometry & Vision Science Program, School of Healthcare Sciences, Faculty of Health Science, University Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: diyanahani@hotmail.com

To compare the visual acuity at different contrast between normal eyes, low meridional amblyopic eyes and the fellow eye. Twenty three children (10 low meridional amblyopes and 13 normals) aged between 9 to 11 years were recruited into this study. Subject refractive error was less than ±4.00D sphere and -3.00D cylinder. Log MAR chart was used to measure visual acuity at 100% contrast and Lea chart was used to measure visual acuity at 25%, 5%, and 2.5% contrast. Visual acuity at contrast 100%, 5%, and 2.5% were found to be significantly different between normal eye, amblyopic eye and the fellow eye (p<0.01, p=0.03 and p=0.02 respectively). Visual acuity at 100% contrast was significantly different in all three groups. Visual acuity at 5% and 2.5% contrast was significantly different only between normal eyes and amblyopic eyes. The mean and standard deviation of visual acuity at 100% contrast for normal eye, amblyopic eye and the fellow eye were 0.00±0.00, 0.31±0.03, and 0.05±0.15 respectively. The mean and standard deviation for normal eyes and amblyopic eyes for visual acuity at 5% contrast was 0.36±0.07 and 0.48±0.16 whereas visual acuity at 2.5% contrast was 0.50±0.09 and 0.62±0.06 respectively. In low meridional amblyopes, the visual acuity was significantly reduced at high and low contrast but not for medium contrast.

ID35 - Measuring Vision Rehabilitation Outcomes on Visually Impaired Schoolchildren using UKM-Child

MUHSONAT MOHAMAD ZAIN, NORLIZA MOHAMAD FADZIL & ZAINORA MOHAMMED

Optometry and Vision Science Program, School of Healthcare Science, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: me_mnz90@yahoo.com

Vision rehabilitation for visually impaired schoolchildren is very important to help them to use their remaining vision effectively in performing activities of daily living (ADL) and thus enable them to be more independent in the future. UKM-CHILD is an ADL index to assess ability of visually impaired schoolchildren to perform ADL. UKM-CHILD consist of 25-items of self-reported questionnaire and 7-items of performance measures. The objective of this study is to investigate the outcome of vision rehabilitation on ADL using UKM-CHILD. Forty visually impaired schoolchildren aged 15.33 ± 1.56 years underwent vision rehabilitation which involved prescription of spectacles, prescription of low vision devices and training on the use of the low vision devices. The training comprised of handling the devices and training in reading. The UKM-CHILD was researcher-administered at pre and post vision rehabilitation. Both self-perceived (self-reportpre:1.72±0.83 logit; self-reportpost:2.12±1.25 logit; z=-5.129, p<0.001) and actual ability (performance measurepre:0.82±0.30 logit; performance measurepost:2.87±1.52 logit; z=-5.55, p<0.001) of visually impaired schoolchildren were found to be improved at the end of vision rehabilitation. The vision rehabilitation given appears to improve the ADL especially the task that related to near work such as reading and writing. This study suggests that UKM-CHILD
can be used to measure the outcome of vision rehabilitation and can be utilized by health care professionals in their practice.

**ID49 - Self-Reported Visual Function Index (VF-14) and its Correlation with Best Corrected Visual Acuity in Elderly**

**SITI ZAWIYAH MANSOR**, **ZAINORA MOHAMMED**, **SAADAH MOHAMED AKHIR**, **BARIAMOHD ALI** & **NORHANI MOHIDIN**

1. Optometry and Vision Science Program, School of Healthcare Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
2. Department of Optometry, Faculty of Health Sciences, Universiti Teknologi MARA, Puncak Alam Campus, Bandar Puncak Alam, Selangor Darul Ehsan

To determine score of self-reported visual function index (VF-14) and its correlation with best corrected visual acuity (VA) in elderly population. Participants were elderly recruited from the ongoing population-based longitudinal study on neuroprotective model for healthy longevity (TUA) aged 60 years and above. Visual acuity was measured using logMAR chart. A self-reported visual function assessment was measured using modified Bahasa Malaysia Visual Functioning Index (VF-14). The VF-14 is a measure of perceived visual function based on 14 everyday activities performed in everyday life. A total of 482 subjects (92.9%) participated in this study. Mean age was 69.18 ± 5.67 and mean best corrected VA was 0.21 ± 0.17. Mean VF-14 score (all) was 89.65 ± 13.19. Female had lower self-reported visual function scores compared to male (mean women 89.21 ± 12.76, mean man 90.11 ± 13.65). However the difference was not statistically significant (z = -1.09, p = 0.277). There is a moderate but significant correlation between best corrected VA and VF-14 score (r = -0.412, p < 0.01). This study found that VA is only moderately correlated with self-reported visual function (VF-14) in elderly. This suggests VA alone does not explain self-reported visual function and other factors such as socio-demographic status, contrast sensitivity and stereopsis should be considered when evaluating the elderly visual functions.

**ID62 - Endothelial Cell Morphology after 6 Months Wearing Contact Lens**

**ASMAH AHMAD, BASHIRAH ISHAK & BARIAMOHD ALI**

1. Optometry and Vision Science Program, School of Healthcare Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

To evaluate changes in endothelial cell morphology after 6 months of wearing soft contact lenses. A total of 48 young myopic Malay adults were included in the study. Twenty four of them were fitted with soft hydrogel contact lenses (group A) and another 24 were prescribed with glasses (Group B). Endothelial cell morphology was evaluated using Specular microscope. Refraction was conducted subjectively and standard contact lens fitting protocol was followed. Data was collected at baseline and after 6 months of lens wear. Mean age of subjects was 21.23 ± 1.3. Mean refractive error for Group A was -2.17 ± 1.1DS at baseline and -2.33 ± 1.05DS after 6 months; (p=0.68). Mean refractive error for group B was -2.72 ± 1.51DS and -2.75 ± 1.6DS at baseline and after 6 month respectively (p=0.328). Mean Endothelial Cell Density (cell/mm²) for Group A was 3104.19 ± 237.30 and 3107.23 ± 237.51 at baseline and after 6 months respectively; (p=0.065). Mean endothelial cell density (cell/mm²) for Group B was 3011.56 ± 227.95 and 2983.83 ± 244.55; at baseline and after 6 months respectively (p=0.329). Coefficient variant cell (%) for group A was 46.52 ± 8.63 and 48.53 ± 10.65 at baseline and after 6 months respectively (p=0.064). Coefficient variant cell (%) for group B was 46.93 ± 9.31 and 46.14 ± 10.65 at baseline and after 6 months respectively. (p=0.877). Hexagonality of cells (%) for group A was 46.21 ± 10.12 at baseline and after 6 months was 45.15 ± 10.01; p=0.082. Hexagonality of cell (%) for group B was 46.21 ±10.12 at baseline and after 6 months was 45.15 ± 10.01 (p=0.115). Corneal Thickness (µm) for group A was 520.33 ± 0.04 at baseline and after 6 months was 525.7 ± 0.05; p=0.4. Corneal Thickness (µm) for group B was...
: 532 ± 0.04 at baseline and after 6 months was 530 ± 0.05; (p=0.4). This study found that wearing soft hydrogel contact lens for 6 months does not have an impact on the integrity of the corneal endothelial cells. However, patient compliance is essential to ensure such results.

ID82 - Clinical Evaluation of Tears in Young Adults - A Malaysian Study

MOHAMD HANIF HAJAR MAIDIN1, ZAINORA MOHAMMED1, JAMALUDDIN MOHAMMED2 & BARIAH MOHD ALI1

1Optometry & Visual Science Program, School of Healthcare Science, Faculty of Health Science, Universiti Kebangsaan Malaysia Kuala Lumpur
2Biomedical Science Program, School of Diagnostic and Applied Health Sciences, Faculty of Health Science, Universiti Kebangsaan Malaysia Kuala Lumpur

Author’s e-mail: hanifmaidin@gmail.com

Previous works have shown that Asians have lower tear stability than Caucasian eyes. This study aimed to clinically evaluate tears of a young healthy adults living in Kuala Lumpur. A total of 106 healthy non-contact lens wearers (age range 23.06 ± 2.629 years old) were evaluated in this study. All subjects were screened with McMonnies Dry Eye Questionnaire (MDEQ) before undergoing clinical evaluation. Clinical evaluation includes Phenol Red Thread test (PRT) and Tear Break up time (TBUT). Tears osmolarity was measured using Advance Micro Osmometer. Following MDEQ score, 35 subjects were classified as dry eye (DE) with mean score of 16.49 ± 1.74 and 71 subjects were classified as non-dry eye (NDE) with mean score of 7.23 ± 3.09. The results for DE subjects: PRT, 9.47 ± 5.84mm, TBUT, 4.83 ± 1.53s and tear osmolarity 310.22 ± 11.90 Osm/L; NDE subjects: PRT, 14.15 ± 5.13mm, TBUT, 5.69 ±1.61s, tear osmolarity 282.72 ±15.50 Osm/L. Independent t test showed significant differences between both groups for all parameters measured. Significant correlations were found between MDEQ score and TBUT (p=0.006, R=−0.186) and PRT (p<0.001 R=−0.266). The results described tear characteristics of NDE and DE of young adults living in Kuala Lumpur. The findings support earlier studies that showed Asians have lower TBUT than Caucasian eyes. 10 second cut off point that widely used for TBUT clearly only applicable to Caucasian not to Asian. Compared to Caucasian 10 second cut off point, it is normal for Asian to have tear stability less than 10 second. In this study Asian cut off point should be below 4 second to be consider as dry eye. The results also indicate that MDEQ is a sensitive screening tool and can assist in the diagnosis of DE. Asians have different tear characteristics than Caucasians and it must be considered for any contact lens research or treatment of dry eye.
NUTRITION AND DIETETICS (NAD)
ID39 - Validation of Exclusive Breastfeeding Practice among Mothers in Klang Valley: Preliminary Results

LIVY, C. G. Y.¹, NIK SHANITA, S.², NOOR ZAHLA, M. I.¹ & NORIMAH, A. K.¹
¹Nutritional Science Program, School of Healthcare Science, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
²Dietetics Program, School of Healthcare Science, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Overestimation of exclusive breastfeeding (EBF) rate has been reported in previous studies, hence an accurate and reliable method to determine the actual EBF practice is imperative. This cross-sectional study was carried out to validate EBF practice among mothers in Klang Valley- by comparison of maternal recall against deuterium oxide dose-to-mother technique. A total of 5 mother-infant pairs were recruited from government health clinics in Kuala Lumpur. Mother-infant pairs were recruited into the study when infants were aged 3 months±1 week. Socio-demographic information, anthropometric measurements (height, weight, waist circumference, and blood pressure for mother; length and weight for infant) and EBF practices were obtained. This was followed by baseline saliva collection of mother-infant pairs after mothers were being given 30±0.01g of D₂O. The saliva sample of mother-infant pairs were collected 6 times at post dose day. The results showed that all mothers (mean age 28.4±1.1 years) were educated until university level but majority were stay at home mothers. Mothers had normal BMI (24.6±5.3 kg/m²) had normal blood pressure (105/61±11/12 mmHg) and normal pulse (80±7), however, were not centrally obese (79.1±9.5 cm). All infants were born at full term, and at 3 months had normal body weight (5.3±0.5 kg) and length (58.9±1.6 cm). All mothers claimed they were practising EBF and their infant never received any water sources other than their breast milk during maternal recall method. However, isotopic data from D₂O technique illustrated only 20% of mothers were actually practising EBF. The mean intake of human milk was 739.4 ± 127.4 g/day. Meanwhile non-EBF infants received mean non-milk oral intake of 91.5 ± 71.4g/day; indicating non-EBF practice; in contrast EBF infants received only 10 g/day, demonstrating EBF practice. The preliminary results indicated that maternal recall method is an unreliable method to determine exclusive breastfeeding practices among mothers.

ID44 - Social Influence on Endurance Athletes’ Preferred Snack Choices

CHAN YEIN TSIN¹, NIK. SHANITA SAFII¹ & CHAN WEN LI²
¹School of Healthcare Science, Faculty of Health Science, Universiti Kebangsaan Malaysia
Kuala Lumpur
²National Sports Institute, Kuala Lumpur

Snacks are required for athletes to fuel their higher demand of energy. Social influences such as sports dietitians / nutritionists, parents, friends, coaches and multimedia may play a role in influencing their food intake. The objective of this study is to investigate the influence of nutrition advice of the parents, friends, coaches, medical officers, sports dietitians / nutritionists and multimedia (internet, magazines & newspaper) to athletes on their preferred snacks. The snacks were selected by 69 endurance athletes from the National Sports Institute (ISN) through a questionnaire. The snack choices were based on a recipe book developed by ISN and a picture booklet of the snacks is provided. The snacks with the highest frequencies were recorded as the preferred choices. Out of the 26 snack choices, the top 3 preferred snacks are Popiah Basah/ Jeli Buah-buahan, Salad Ayam and Sandwic Telur dan Keju. Out of the 6 choices of beverages, the top 3 preferred beverages were sports drinks, orange smoothie and apple smoothie. The parent social factor, plays an active role in determining the athletes most preferred snacks (p = 0.041). There was also significant difference between the dietician factor and the second most preferred snack (p=0.02). Other social influences such as friends, medical officer and coach shows no significance effect on the preferred snack choices. Only internet (p=0.024), under the multimedia category, shown to have significant effect on the snack choices. The parent factor also has significant effect on the most preferred beverage choices with p = 0.043. This is essential as parent may not be qualified to give proper
nutritional advices as compared to sport dietitians / nutritionists. More studies need to be done on evaluating who has the greater and appropriate influence in encouraging athletes to take a proper diet intake.

ID50 - Food Intake among Older Adults with Food Insecurity in an Agricultural Settlement at Lubuk Merbau, Kedah

ROHIDA SALEH HUDIN¹, SUZANA SHAHAR¹, NORHAYATI IBRAHIM²
& HANIS MASTURA YAHAYA³

¹Dietetic Program, School of Healthcare Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia Kuala Lumpur
²Health Psychology Program, School of Healthcare Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia Kuala Lumpur
³Nutritional Science Program, School of Healthcare Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia Kuala Lumpur

Author’s e-mail: rohida72@gmail.com

Food insecurity is associated with inadequate nutrient intake. Therefore this study was aimed is to determine the food intake among older adults with food insecurity in an agricultural settlement, i.e. Felda Land Development Authority (FELDA) settlers at Lubuk Merbau, Kedah. A total of 70 older adults with mean age of 69.6±6.5 years participated through a house to house data collection to get information on sociodemographic, food insecurity and food intake. Food intake was recorded for a week using food supply questionnaire. Food insecurity was assessed using Food Security Tool For Elderly from Wolfe et al (2003). Results indicated that the prevalence of food insecurity was 19.7% (20% in men and 19.6% in women). Energy intake was found to be higher among those with food insecurity as compared to those who were food secured (2173.0±783 kcal/day dan 1838±447 kcal/day (p<0.05). However, after removing the over reporters, the differences were not significant (1795.1±243.4 kcal/day and 1646.4±268.9 kcal/day). Total intake from food groups of fat, oil, sugar and salt was higher among subjects with food insecurity (106.6±60.0 g/day) as compared to those who were food secured (80.3±30.1 g/day)(p<0.05). In conclusion, food insecurity affected approximately a fifth of the subjects and associated with unhealthy diet with high fat, oil, sugar and salt. There is a need to formulate intervention programme to improve the quality of diet of older adults at high risk of food insecurity.

ID66 - Efficacy of Partially Hydrolysed Guar Gum (PHGG) in Reducing Risk of Diarrhea in Cancer Patient Undergoing Pelvic Radiation

DZAIRUDZEE ROSLI¹, SUZANA SHAHAR¹, ZAHARA BT ABDUL MANAF¹
& HAZREEN A. MAJID²

¹Dietetics Program, School of Healthcare Science, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur
²Centre for Population Health and Department of Social and Preventive Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur,

Author’s e-mail: dzai8558@gmail.com

Radiation therapy is commonly used for the treatment of pelvic cancers, and diarrhea is the most frequent acute side effect, affecting up to 80% of patients treated, leading to other health problems such as malnutrition, abdominal pain, reduced quality of life, increase the cost of care and delay treatment completion. Thus, the objective of this study to evaluate the efficacy of partially hydrolyzed guar gum (PHGG) usage in reducing risk of radiotherapy induced diarrhea, bifidobacteria quantification, nutritional status and quality of life between intervention and controlled group. Thirty adult patients undergoing pelvis radiation were recruited and randomized to receive 7gram/day of PHGG or placebo (maltodextrin) twice daily 14 days prior and followed with 14 days during pelvis radiation treatment. Diarrhea symptoms, fecal sample, nutritional status and quality of life data were collected at baseline, day 7, day 14, day 28 after product consumption and at end of pelvis
radiation treatment. Repeated measure anova was employed to determine the mean difference of diarrhea frequency between and within group. Twenty-three patients with mean age 56.5 ± 10.8 years completed until end of pelvis radiation. There were no significant differences in mean of diarrhea frequency between groups. However, mean of diarrhea frequency were significantly difference in A Group between time of baseline & day 7 and day 7 & day 28 according to paired t-test with Bonferoni correction. In conclusion, supplementation of PHGG to cancer patient undergoing pelvis radiation did not reduce the frequency of diarrhea.

ID67 - Effect of Iron Supplementation and Nutrition Education on Ferritin Level among Female Adolescents in the Gaza Strip, Palestine

MARWAN JALAMBO, NORIMAH KARIM & RAZINAH SHARIF

Author’ e-mail: m.j.nutritionist@gmail.com

Iron deficiency anaemia is highly widespread in developing countries. Adolescent is one of the most challenging period in human development. In north Gaza strip, the prevalence of anaemia among female adolescents aged 12-15 years was 51.3%. The present study was designed to determine the effect of iron supplementation and nutrition education on ferritin level among female adolescents in the Gaza strip, Palestine. Five schools were selected randomly from five governorates in the Gaza strip. Blood analyses carried out were complete blood count and serum ferritin. A total 131 iron deficient and iron deficient anaemic participants based on WHO classification were enrolled in this randomized control trial study. The participants were subsequently randomized into three parallel groups namely 42 participants in the control group, 45 in iron supplementation (ferrous fumarate-200mg-once weekly) group and 44 in the iron supplementation with nutrition education (1.5 hours weekly for 9 weeks) group. The intervention was performed for 3 months, with 3 months as follow up without intervention. The mean ferritin concentration were significantly different between baseline (before start the intervention, midline (after intervention), and endline (after follow up without intervention) [F(1.6,210)=133.851, p<.001]. Post-hoc test correction revealed that there is statistical significant difference in ferritin levels between (baseline*midline), (baseline*end-line), but there is no statistical significant difference between (midline*end-line). In addition, mean ferritin concentration was significantly different between groups [F(2,128)=11.509, p<.001] .Post-hoc test correction revealed that there is statistical significant difference between (Control*Iron-supp), (Control*Iron-supp+NE), however, there was higher ferritin levels between midline and endline among iron supplementation with nutrition education group. While there was a lower ferritin level between midline and endline among iron supplementation group only, however, these differences were not statistically significant. This intervention study demonstrated that nutrition education with iron supplementation can improve ferritin level among iron deficient female adolescent in the Gaza strip.

ID71 - Cost-Benefit Analysis of Implementation of Pictorial Dietary Assessment Tool (PDAT) for Hospitalized Adult Patients

DWI BUDININGSARI1, 2, SUZANA SHAHAR3, ZAHARA ABDUL MANAF1, NOR AZLIN MOHD NORDIN3 & SUSETYOWATI2

1Dietetic Program, School of Healthcare Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
2Department of Health Nutrition, Faculty of Medicine, Gadjah Mada University, Farmako Sekip Utara Street, 55281 Yogyakarta, Indonesia
3Physiotherapy Program, School of Rehabilitation Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: budiningsari25@gmail.com

Although nutritional screening and dietary monitoring in clinical settings are useful to identify patients at high risk of malnutrition and consuming an inadequate diet, studies on its’ cost benefit are still lacking. Thus, this study aims to elucidate the cost-benefit, the accuracy and satisfaction of health care staff in estimating food intake after implementing a newly developed dietary monitoring tool, ie. Pictorial Dietary Assessment Tool (PDAT) among diabetic hospitalized adult patients. A cross-over intervention study was conducted to
determine the cost-benefit of PDAT as compared to existing method, i.e., Comstock in estimating dietary intake among hospitalized patients diagnosed as having diabetes mellitus type 2 at Dr Sardjito Hospital, Yogyakarta, Indonesia. Eight dietitians, six nurses, and eight serving assistants were involved to estimate food intake of three patients each, therefore, a total of 132 patients was recruited. Activity-Based Costing (ABC) was applied to measure cost and time required for implementation of Comstock and PDAT. The accuracy of estimation of food intake was calculated by comparing energy and protein intake using both methods by McNemar test for percentage of estimates within 15% (P15) and 30% (P30) of the food weighing. Satisfaction towards the usage of both methods was estimated by using a 5-point Likert Scale questionnaire. Total time to complete the food intake record of patients spent by PDAT was shorter than Comstock (2.31 minutes ± 0.70 vs 3.53 minutes ± 1.27, respectively, P<0.001). Total overall cost obtained by PDAT was slightly higher than Comstock (USD 0.27±0.02 vs 0.25±0.04, respectively, P <0.05). The accuracy of energy intake estimated by Comstock was lower than PDAT, based on weight intake (>86% vs >96%, respectively; P<0.05). However, poor accuracy of protein intake (<40%) estimated by Comstock was obtained in all categories. The accuracy of protein intake by PDAT was much higher (>71%). Mean satisfaction of most of the healthcare aspects was significantly higher for PDAT than Comstock (p<0.05 for all parameters). PDAT needs shorter time and was rated better than Comstock to be used as a dietary monitoring tool in a clinical setting. Only USD 0.01 is needed to increase the accuracy of energy and protein intake as much as 10% and 30%, respectively. However, there is a need to further evaluate its efficacy in improving clinical outcomes.

ID76 - Development and Process Evaluation of Cooking Book: Delivering People’s Healthy Cooking Style to Prevent Obesity

NURULHUSNA ABDULLAH, WAN NURUL NAJWA WAN NIK, WIRDAH MOHAMED, RADUAN SHARIF & RUZITA ABD TALIB

Nutritional Science Program, School of Healthcare Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: husnaabdullah91@yahoo.com

Increase intake of high calories food without doing any physical activities, is one of the factors that lead to weight gain. Health education and promotion are one of the important aspect in overweight and obesity prevention programme. This presentation aims to report on development of healthy cooking recipe book as one of the education materials that can educate overweight or obese individuals. The need assessment study was done among 23 obese and overweight subjects in determining their food preferences for breakfast, lunch and dinner. 41 recipes were found and analyzed on their calorie and nutrient content. Recipes of these 41 foods were then modified to the healthier cooking methods. The nutrient composition of those recipes before and after being modified were determined by using Malaysian Food Composition Book and software Nutritionist Pro. A workshop was done among the 4 researcher and 2 qualified chef to discuss on the modified recipes. A survey was then conducted in the local mini market at the target locality to ensure the availability of ingredients used in the modified recipes. The recipes were also validated by the 2 experts. 19 healthy recipes including beverages were then added which gave 60 total of recipes in the book. The cooking session was done by the 2 qualified chef and food tasting was done by the 5 nutritionists and researchers. Photo shoot of the cooked food was done concurrently during the cooking session. Finally, all the photographs, recipes and nutrition information are gathered in the recipe book. Content, design and layout of the book, will be vetted by the research group members and public.
ID83 - Association of Physical Activity and Sedentary Behaviours with Adiposity Changes Among Malay Schoolchildren: A Follow-Up Study

ANG, Y. N.\textsuperscript{1}, MAHADIR, A.\textsuperscript{2}, KAGAWA, M.\textsuperscript{3} & POH, B. K.\textsuperscript{1}

\textsuperscript{1}Nutritional Sciences Program, School of Healthcare Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
\textsuperscript{2}Health Psychology Program, School of Healthcare Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
\textsuperscript{3}Institute of Nutrition Sciences, Kagawa Nutrition University, Japan.

Author’s e-mail: yeownyin_ang@yahoo.com

Physical inactivity increases obesity risk, but the relationship between physical activity (PA) and adiposity among children remains inconsistent. The present study aims to investigate the relationships of PA and sedentary behaviours with changes in several adiposity indicators among schoolchildren after 9 months and 18 months from baseline. A total of 225 participants (94 boys, 131 girls) aged 9 to 14 years were recruited from national schools in Kuala Lumpur using single-stage cluster sampling method. Weight, height, waist circumference (WC) and skinfolds were measured; and body mass index (BMI) was calculated. Body fat percentage, fat mass (FM) and fat free mass were determined by bioelectrical impedance analysis. PA was assessed by physical activity questionnaire (PAQ) and step counts were measured using pedometer for at least three weekdays and one weekend day. Sedentary behaviour was assessed with questionnaire adapted from Child and Adolescent Physical Activity and Nutrition Survey. All measurements were done at baseline, 9 months and 18 months. Mean age, weight, height, BMI, sum of four skinfolds and WC at baseline were 12.1±1.7 years, 44.0±15.2 kg, 146.6±11.0 cm, 20.1±5.2 kg/m\textsuperscript{2}, 46.8±20.1 mm and 64.9±12.6 cm, respectively. Boys had higher weight, WC and BMI than girls (p<0.05) while girls had higher sum of skinfolds (49.1 ± 18.6 mm) compared to boys (43.4± 21.8 mm) at p<0.05. All anthropometric variables and adiposity indicators increased at both follow-ups (p<0.05). At baseline, mean PAQ score was 2.42±0.56 and mean pedometer step counts was 9311±3270 per day; with 73\% not meeting Tudor-Locke et al. (2009) pedometer step-count recommendations. PA variables did not change at 9-month follow-up compared to baseline. Mean PAQ of boys was significantly higher (p<0.05) higher than girls at baseline and both follow-ups. However, mean daily pedometer step counts was lower at 18-month follow-up (8559±3409 steps). At baseline, PA and other sedentary activities were not associated with adiposity indicators at both follow-ups while only screen time was higher at 9-month follow-up compared to baseline (p=0.05). Screen time was positively associated with BMI (Beta=1.04, p<0.05) and BMI-for-age Z-score (Beta=1.23, p<0.05) at 9-month follow-up after adjusting for sex, age, Tanner stages and adiposity at baseline. In addition, screen time was also found to be significantly associated with BMI-for-age Z-score (Beta=1.25, p<0.05) and FM (Beta=1.30, p<0.05) after adjusting for covariates. In conclusion, screen time was related to gain in adiposity of children over time. These findings suggest that reduction of sedentary behaviour, particularly screen time, may need to be emphasized in order to prevent obesity in late adolescence.
ID84 - Food Taboos Practices after Cancer Treatments among Breast and Gynecology Malay Cancer Survivors and the Effect towards the Quality of Life.


1Nutritional Sciences Program, 2Dietetics Program, 3Health Psychology Program, School of Healthcare Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
3School of Nutrition and Dietetics, Faculty of Health Sciences, Universiti Sultan Zainal Abidin (UniSZA), Kuala Terengganu
5Department of Obstetric & Gynecology, 6Department of Radiotherapy & Oncology, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Cheras, Kuala Lumpur
Author’s e-mail: nadzirahhaniszainordin@gmail.com

After cancer treatments, cancer survivors were highly motivated to change their lifestyles for a healthier living by changing their food intake, menu planning and avoiding certain types of foods. Therefore, this study was conducted to identify food taboos practiced among Malay breast (BaCa) and gynecology (GynCa) cancer survivors (CS) after completing cancer treatments and its effects on the quality of life (QOL). A cross-sectional study was conducted via purposive sampling method among 108 BaCa (n=68) and GynCa (n=40) CS. The majorities of respondents were in stage II (41.2%), with a mean age of 51.1 ± 8.3 years old and had completed their treatments for 4.2 ± 3.4 years. They were recruited from two outpatient clinics at HKL and HCTM. In order to identify which food items were mostly avoided by CS, a food taboos checklist was developed from interviewed 32 CS and was validated. A validated general side effects checklist with yes or no answer was applied to recognize side effects usually experiences by CS. A standardized questionnaire, European Organization of Research and Treatment of Cancer Quality of Life (EORTC QLQ-C30) was applied to determine the general quality of life among CS. Specific side effect, related to types of cancer were identified with EORTC specific questionnaires Module as listed QLQ-BR23 for breast, QLQ-OV23 for ovary, QLQ-EN24 for endometrial and QLQ-CX24 for cervix. Approximately, 79.4% BaCa and 70.0% GynCa CS practiced food taboos after completing their treatment. It was found that at least one food item was avoided by the respondents from the food items listed on the checklist. Food items that were mostly avoided were meat (60.2%), lamb (59.3%), squid (37.0%), shrimp (36.1%), crab (36.1%) and soy beverages (36.1%). The reasons for the practice of food taboo was because the respondents believed that certain food items will increase the risk of cancer recurrence (49.3%), causing food allergies (16.2%) and bloating (21.1%). The most common side effects experienced by respondents were fatigue (59.3%), numbness (48.1%) and back pain (47.2%). EORTC QLQ-30 indicated that respondents who did not practice food taboo had a higher mean score on global QOL scale (p<0.05). Only the ovarian CS practicing food taboos had shown significantly higher mean score skin problems compared to respondents that not practicing food taboos (p<0.05). Interestingly, respondents with less than three years survivorship [OR 2.54, CI 95% 1.01-6.35] and experienced fatigue [OR 2.49, CI 95% 1.01-6.13] were more inclined to practice food taboos. In summary, food taboos significantly affected the QOL after cancer treatments. Therefore, continuous education after cancer treatments was needed, with specific attention given to Malay socio-culture. Proper guidance was key in assisting Malay cancer survivors to make appropriate food choices, which was important to maintain good QOL.
ID89 - Current Practice of Intradialytic Parenteral Nutrition (IDPN) Service at Malaysian Hospitals: Preliminary Results from a Stakeholder Evaluation

SADU SINGH, B. K.¹, KARUPAIAH, T.¹ & ABDUL GAFOR, A. H.²

¹Dietetics Program, School of Healthcare Science, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur
²Medical Department, Faculty of Medicine, Pusat Perubatan Universiti Kebangsaan Malaysia, Cheras, Kuala Lumpur

Author’s e-mail: birin@ppukm.ukm.edu.my

Malnourished chronic kidney disease patients on maintenance haemodialysis (HD) often present with protein energy wasting (PEW), which affects their nutritional and metabolic status. Poor oral intake is one of the many causative factors of PEW; therefore patients who are unable to tolerate oral or enteral feeding should benefit from Intradialytic Parenteral Nutrition (IDPN). IDPN is now proposed as an intensive treatment option to address PEW by the International Society of Renal Nutrition and Metabolism. IDPN is the administration of nutrients (usually a mixture of essential and non-essential amino acids, dextrose and lipid emulsions) during each dialysis session, through the parenteral route. IDPN offers multiple potential advantages such as easy administration through pre-existing vascular access, ready regulation of nutritional content, prevention of net loss of amino acids and water-soluble vitamins during HD. It is therefore evident that an evaluation of the current state of IDPN practice at Malaysian HD centres is timely in terms of defining the ‘who’, ‘what’ and ‘how’ questions relating to IDPN delivery to dialysis patients. This cross-sectional survey is aimed to report on the current practice of IDPN service delivered by pharmacists at Malaysian Hospitals. There were 56 hospital pharmacists from the Ministry of Health, university hospitals and private hospitals who were responsible for IDPN delivery and were identified as respondents for this study. The hospitals with parenteral nutrition services were identified from the Pharmacy Board of Malaysia website. Only pharmacists with at least 12 months clinical experience were included. The questionnaire covered question items probing accessibility to IDPN services, IDPN prescription, parenteral nutrition bag availability, IDPN administration, monitoring and complications in IDPN. Only 23.2% or 13 hospitals provided IDPN to outpatient haemodialysis patients at Malaysian hospitals. Half of the participating hospitals do not provide any IDPN to their patients and almost 43% of these hospitals focused at supplementing IDPN to warded ill patients. These findings are parallel to the current state of practice where parenteral supplementation is kept to the last when patient is critical. The outcome of this survey will feedback to various stakeholders in terms of optimizing the quality of IDPN service provided at dialysis units in this country and the transformation to change the current environment of IDPN use to outpatient dialysis setting so IDPN can be introduced at an early stage of PEW as a treatment option to patients who could not tolerate oral or enteral nutrition.

ID92 - Accuracy of Nutrition Professionals in Estimating Nutrient Values based on Digital Food Photographs

AINAA FATEHAH, POH BEE KOON & WONG JYH EIIN

Nutritional Science Program, School of Healthcare Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: ainaa.ayob@gmail.com

Food photograph-based dietary assessment methods have been increasingly used for dietary assessment. This study aims to determine the accuracy of nutrition professionals in estimating nutrient values of two lunch meals based on digital food photographs. A purposive sampling was used to recruit subjects (n=38) from hospitals, institutions and universities. Each subject were randomly given one of the four sets of digital food photographs. Each set consisting of two digital food photographs labelled as Image A (lunch meal on a plate) and Image B (lunch meal in a bowl) were delivered to the subjects through an online questionnaire. A total of 38 subjects (16 dietitians, 8 nutritionists and 14 nutrition researchers) with mean age 26.4 years ± 2.5 participated this study. A total of 31 subjects (81.6%) completed estimation for both images, and 7 (18.4%) completed Image A only.
Accuracy of estimation were determined by comparing estimated with reference nutrient values. For Image A, mean estimation were not significantly different for carbohydrate (p=0.195), protein (p=0.731), fat (p=0.005) and fiber (p=0.250) when compared with reference values; however, a significant difference was observed for energy with percentage difference of 24.2% (p<0.01). Estimation of fiber from Image B was significantly lower (percentage difference -49.9%, p<0.001), while carbohydrate (p=0.115), protein (p=0.983), fat (p=0.229) and energy (p=0.990) estimations were not significantly different from the reference values. Protein estimation was most accurate for both A and B images, with percentage difference of 3.3% and 2.1%, respectively. The largest inaccuracies were fat estimation in Image A (36.9%) and fiber estimation in Image B (-49.9%). Overall, nutrient that was accurately estimated (within ± 10% of percentage difference) from Image A was protein while from Image B were carbohydrate, protein and energy. In conclusion, the estimation of nutrients by nutrition professionals based on digital food photographs were accurate for protein in both images, but inaccurate for fat and fiber. Further studies using digital food photographs are suggested for various types of foods to improve its accuracy by nutrition professionals.

ID95 - Does C.E.R.G.A.S Programme Improve Health-related Physical Fitness Components in Overweight/Obese Adolescents?

LAU, X. C.¹, RUZITA, A. T.¹, HAZIZI, A. S.², NG, L. O.³, HUI, S. S. C.⁴ & POH, B. K.⁵

¹Nutritional Science Program, School of Rehabilitation Science, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
²Department of Nutrition and Dietetics, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Serdang, Selangor
³Department of Psychology, Faculty of Science and Technology, Sunway University, Petaling Jaya, Selangor
⁴Department of Sports Science and Physical Education, The Chinese University of Hong Kong, Shatin, Hong Kong

Author’s e-mail: lxc1220@gmail.com

Poor physical fitness (PF) is significantly associated with higher total body fatness among adolescents. This trend tracks into adulthood; hence, there is a need to evaluate and find effective strategies for increasing PF among overweight and obese (O/O) adolescents. The present study aimed to examine the effectiveness of C.E.R.G.A.S. (Ceria, Respek, Gigih, Aktif, Sihat) programme on PF among O/O adolescents in secondary schools. Three secondary schools in Selangor were assigned as intervention (IG), control I (CGI) and control II (CGII) groups. The IG students (n=52, 13.6±2.1 year-old) received additional physical activity (PA) education in a 2-day camp at a training centre, apart from standard Physical and Health Education school curriculum. IG students also underwent supervised aerobic and resistance exercise training sessions twice a week for 12 weeks at school. CGI students (n=48, 13.4±2.1 year-old) received the same education programme as IG but without exercise training session; whereas, CGII students (n=50, 13.6±3.3 year-old) received only standard Physical and Health Education school curriculum. A series of PF tests were used to assess subjects’ fitness level, which included the 15-meter Progressive Aerobic Cardiovascular Endurance Run (15-m PACER), handgrip (both hands), modified back saver sit-and-reach (MBSSR) and 1-minute sit-up test at week-0 (baseline), week-12 (post-1), week-24 (post-2) and week-36 (post-3). The main outcome measure was changes in mean scores of PF tests. IG demonstrated significant within-group changes over 12-week (post-1) in 15-m PACER (Δ= 6.2±2.9 laps), handgrip (both hands) (Δ= 4.2±2.6 kg), MBSSR (Δ= 8.3±3.1 cm) and 1-minute sit-up (Δ= 8.3±4.2). There were no significant improvements in PF tests at post-2 and post-3 measurements. Intention-to-treat analyses resulted in similar, non-significant results. For CGI and CGII, no significant changes were observed in any of the PF tests from baseline to post-3. Between-group differences were found in PF tests and in favour of IG (p<0.05) at post-1 and 2. However, no between-group differences were found at baseline and post-3. The results suggest that education plus exercise training is a more effective strategy to improve PF. In conclusion, C.E.R.G.A.S programme has short-term positive effects in improving PF among O/O adolescents and is feasible to be implemented in school-setting. However, the sustainability of the programme needs to be considered when planning to adopt on a large-scale.
ID98 - Correlation of Breastfeeding and Complementary Feeding Practice with 6-11 Month-Old Infants’ Nutritional Status in Kelurahan Menteng, Bogor City

FAJRIA SALIHA PUSPITA PRAMESWARI¹ & DODIK BRIAWAN²

¹Mahasiswa Departemen Gizi Masyarakat, Fakultas Ekologi Manusia, Institut Pertanian Bogor, 16680
²Dosen Departemen Gizi Masyarakat, Fakultas Ekologi Manusia, Institut Pertanian Bogor, 16680

Author’s e-mail: pfajriasaliha@gmail.com

The purpose of this research was to analyze relationships of breastfeeding and complementary feeding practice with infants’ nutritional status in Kelurahan Menteng, Bogor City. The design of this research was cross-sectional study with purposive sampling design. 53 infants aged 6-11 month-old in Kelurahan Menteng, Bogor City, were selected as the subjects of this research. The results showed that breastfeeding and complementary feeding practice in most subjects, 37.8%, were in high category. Most of the subjects had normal nutritional status by length-for-age (LAZ), weight-for-age (WAZ), and weight-for-length (WLZ) z-scores with percentages of 92.4%, 90.5%, and 94.3% respectively. Spearman tests showed there was no significant correlation between breastfeeding and complementary feeding practice with subjects’ nutritional status (p>0.05).

ID100 - Diet Quality of a Multiethnic Malaysian Population Based on Adherence on Recommendations of the Malaysian Dietary Guidelines 2010

GAIYAL VILIY BALASUBRAMANIAN

School of Healthcare Science, Faculty of Health Science, Universiti Kebangsaan Malaysia

Kuala Lumpur

Author’s e-mail: gaiyalviliy@gmail.com

The adherence of multiethnic Malaysian practices to recommendations of the Malaysian Dietary Guidelines 2010 (MDG 2010) is not known. We examined and compared diet quality among three main ethnic groups in Malaysia. A cross-sectional study was conducted within the Malaysia Lipid Study with 577 subjects aged between 20 and 65 years who met the inclusion criteria, and represented the main ethnic groups of Malaysia i.e. Malays, Chinese and Indians. Diet quality was assessed using the Healthy Eating Index (HEI) comprising 10 components measuring diet adherence to the MDG 2010. Subsequently HEI scores were compared between ethnic groups. Healthy Eating Index Grading Scale (HEIGS) was used to rate HEI scores. The subjects were categorised into “poor”, “needs improvement” and “good” categories based on their HEI scores. Overall mean (±SD) HEI total score was 56.8±9.2 which is falls within the “needs improvement” category in HEIGS. Overall adherence on “Dietary Cholesterol” (8.6±3.0), “Cereals and Grains” (7.9±1.8) and “Total Fat” (7.9±2.4) components were optimal whereas adherence on “Saturated Fatty Acid” (2±2.3) and “Milk and Milk Products” (2.4±2.9) were not satisfactory. Trends for overall mean HEI total score as per ethnicity were significant (P=0.003) comparing Indians (58.7±7.9) with Chinese (56.7±9.9, P=0.033), Indians (58.7±7.9) with Malays (55.7±9.1, P=0.001) but the comparison between Malays and Chinese was not significant (P>0.05). Eight HEI component scores namely “Fruits”, “Vegetables”, “Fish/Poultry/Meat/Legumes”, “Milk and Milk Products”, “Total Fat”, “Dietary Cholesterol”, “Dietary Sodium” and “Variety” were significantly different between ethnic groups (P<0.01). When assessed using HEI, adherence to MDG 2010 guidelines differed among three main ethnic groups as determined by HEI component scores. Although Indians had the highest diet quality while Malays had the lowest, it is important to conclude that the diets of all the three ethnic groups were in the “needs improvement” category.
ID101 - Food Beliefs and Dietary Practices among Leukemia Carers at Hospital Kuala Lumpur – A Qualitative Study

SITI ASILAH YUSOF1, POH BEE KOON2, ZAHARA ABDUL MANAF1 & ROSLEE RAJIKAN1

1Dietetic Program, School of Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
2Nutritional Sciences Program, School of Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: zaiturqin03@gmail.com

Food beliefs and dietary practices among parents and carers play an important role in the dietary intake of children with leukemia. However, local studies that investigate the dietary practices and food beliefs related to cancer patients and their caregivers are very limited. This study aimed to investigate the food beliefs and feeding practices among carers of children with leukemia at the Paediatric Institute of Kuala Lumpur Hospital (IPHKL), Malaysia. A qualitative study was conducted to assess the food beliefs and feeding practices among carers of childhood leukemia. A total of 30 subjects consisting of 10 health care professional and 20 carers. Subjects were interviewed using semi-structured interview. This interview then was transcribed and analyzed using qualitative software called ATLAS.ti. Five emergent themes have been found in this study there are food beliefs that can cause child benefits, the food that cause itching, food beliefs related of meat and dairy, food beliefs related to the food containing pesticides and incorrect nutritional information and a lack of knowledge among caregivers. Details of the results from this study can give a perspective to the health professional regarding practices and food beliefs among caregivers of children with leukemia, especially when designing strategies to provide education program to improve the nutritional status of childhood leukemia patients.

ID102 - Formulation of Flakes with Red Kidney Bean and Red Palm Oil as a Nutrition Therapy for Diabetes

REISYA RIZKI RIANTININGTYAS

Department of Community Nutrition, Bogor Agricultural University, Indonesia

Author’s e-mail: reisyarizki@gmail.com

Diabetes is a metabolic syndrome characterized by hyperglycaemia and the number of people with diabetes continues to increase significantly in the last thirty years. Red kidney bean (RKB) and red palm oil (RPO) have potential properties which may be beneficial for managing diabetes. Empirical data suggest that RKB contains alpha-glucosides inhibitors and alpha-amylose inhibitors while RPO contains antioxidant. This study was aimed to formulate flakes with red kidney bean and red palm oil as a ready-to-eat breakfast for diabetes therapy. The flakes were formulated with different ratios of RKB flour to corn flour (30:70, 40:60, 50:50, 60:40, and 70:30) while the addition of RPO was the same in all formulas (7.5 g in 205 g mixture). The selected formula based on the organoleptic test was F1 (30:70), with the acceptability level of 87%. The nutrient content of the selected product was analysed using proximate methods and resulted as follows: 5.8% of moisture, 0.6% of ash, 13.2% of protein, 16.5% of fat, and 69.6% of carbohydrate. The antioxidant activity of the selected product was 38.46 mg ascorbic acid equivalent/100 g. These findings suggest that the selected product is suitable to be consumed as an alternative breakfast meal for persons with diabetes due to its high fibre content (more than 6 g per 100 g) and 10% lower amount of carbohydrates compared to those in commercial cornflakes.
ID103 - Sustainability of Childhood Obesity Interventions: A Systematic Review

MOK, W. K. H. 1, SHARIF, R. 1, POH, B. K. 1, WEE, L. H. 1, RUZITA, A. T. 1 & REILLY, J. J. 2

1Nutritional Science Program, School of Healthcare Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
2School of Psychological Sciences and Health, University of Strathclyde, United Kingdom

Author’s email: wilfredmpp.asp@gmail.com

Obesity has become a global epidemic and the prevalence of childhood obesity is increasing in the Asia-Pacific region, including Malaysia. Many childhood obesity intervention programmes have been reported; however, empirical evidence investigating the sustainability of these interventions is of limited scope. This study aims to explore the extent of sustainability of childhood obesity interventions based on different levels of Socio-Ecological Model (SEM), which comprises individual, interpersonal, organisation, community and policy levels through systematic review. Keyword search was conducted using EBSCO, PubMed and Science Direct online databases. Inclusion criteria were primary research, long-term childhood obesity intervention, overweight or obesity treatment or prevention intervention, papers published between January 2004 to November 2015 and available in English language. This systematic search led to very little evidence of sustainability of long-term childhood obesity interventions. The databases search produced 987 titles from which 6 studies that met inclusion criteria were deemed relevant. The findings of these 6 eligible studies show a lack of long-term treatment research, and almost no evidence on the sustainability of interventions at individual and policy levels. Community-capacity approach was proven to be positively influencing the sustainability of intervention. It is crucial to have programme champion to support and promote effectively for the programme. Building on childhood obesity interventions, future interventions should aim to incorporate sustainable components and to include as many levels of SEM as possible. We conclude that attention should be given to implementing longer duration interventions that are more than 12 months in order to ensure long-term effectiveness in childhood obesity management programmes.

ID105 - Determinant of Barriers and Facilitators of Healthy Adolescents: A Qualitative Study from Parents Perspective


Nutritional Science Program, School of Healthcare Science, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: SUHAILA.AGHAFFAR@GMAIL.COM

Obesity in adolescents has become one of the most serious global public health issues. Obese adolescents are at an increased risk of developing various health problems and more likely to become obese adults. Besides genetic and environmental factor, parents play a dominant role in adolescent’s eating behaviour. Therefore, it is imperative to explore specific factors on perception, belief and behavior related to healthy lifestyle of adolescent from parents’ perspective. This study is a part of the main study which focused on a broader perspective among adolescents, fast food handlers and canteen operators. A qualitative study, based on Individual, Socioeconomic and Ecological Model (ISEEM) was conducted on a purposive, multi-ethnic sample of twenty-eight parents from four regions in Malaysia. The semi-structured and in-depth interviews were fully transcribed and analyzed qualitatively using Atlas.Ti. The transcribed texts were coded into similar and related themes such as eating behaviour, meal pattern, food environment, accessibility and availability of food at home, self-awareness and physical activity facilities. The result revealed that multifaceted factors contributed to eating behaviour practices among adolescents. The barriers such as lack of time, accessibility and availability of unhealthy food and unconducive food environment prompted the adolescents to practice unhealthy food intake. Meanwhile, supportive and knowledgeable parents and high awareness among family members might increase the likelihood of healthy food consumption and active living among adolescents. The findings highlighted that the barriers to practice healthy lifestyle are considerably outweighing the enabling factors. As conclusion, the findings
illustrated that specifically tailored health promotional programs for the parents can enhanced the healthy lifestyle among adolescents.

**ID107 - Child Feeding Practices of 6-11 Months Old Infants in Menteng District, Bogor, Indonesia**

FAJRIA SALIHA PUSPITA PRAMESWARI  
Student of Community Nutrition Department, Faculty of Human Ecology,  
Bogor Agricultural University, 16680,

Author’s e-mail: pfajriasaliha@gmail.com

The purpose of this study was to analyze the correlation of child feeding practices with nutritional status of 6-11 months old infants in Menteng District, Bogor, Indonesia. This was a cross sectional study using purposive sampling conducted among 53 subjects aged from 6 to 11 months old in Menteng District, Bogor. The method used to measure child feeding practices was Infant and Child Feeding Index (ICFI). The components of ICFI were current breast-feeding, bottle-feeding, 24-h dietary diversity, meal frequency, and 7-d food group frequency. ICFI was divided into three categories, namely low category, medium category, and high category. The results showed that child feeding practices in subjects were spread equally, 32.1% were in low category, 30.1% were in medium category, and 37.8% were in high category. Most of the subjects had normal nutritional status according to length-for-age (LAZ), weight-for-age (WAZ), and weight-for-length (WLZ) z-scores, the percentage were 92.4%, 90.5%, and 94.3% respectively. The ICFI was not associated with any of nutritional status indices. ICFI can not be used to assess the impact of child feeding practices on growth status in Menteng District, Bogor. A further investigation is needed in more diverse settings with larger sample size and longer follow-up period.

**ID108 - Fortification of Iron Microencapsulated to Composite Flour from Sweet Potato, Banana, Soybean, and Carrot as an Alternative Food to Prevent Iron Deficiency Anemia**

I PUTU AGUS MAHENDRA YASA  
Bogor Agricultural University, Indonesia

Author’s e-mail: agusmahendra08@gmail.com

Micronutrient deficiency is a major problem for developing countries, such as Indonesia. Basic health research data (2013) show that the prevalence of anemia in children at the school age (6-12 years old) is about 28.0% in male and 27.4% for female. If the prevention not done properly, iron deficiency anemia can lead to more serious problems such as stunting, slow mental development, low learning ability, low productivity, increase morbidity and mortality and declining in confidence level. Fortification is one of the relatively low cost strategy to improve the nutritional status of people, especially children and adolescents. The objectives of this research was to create a biscuit flour-based from sweet potato, banana flour, soybean flour, and carrot flour with iron microencapsulated fortification to prevent the problem of iron deficiency anemia. The method for this research were making biscuits using local ingredients with dry mixing method, iron was microencapsulated using maltodextrin and gum powder as the coating materials by the spray drying technique, and iron bioavailability of biscuit measured by dialysis bag. The amount of iron microencapsulated was added about 33%, 35%, and 37% from iron RDA of children’s aged 7-9 years old to achieve food with high iron content. The selected formula’s score was 76% of panelist accept the biscuit based on the score ranking of the organoleptic quality. Contributions of biscuits towards energy sufficiency and iron seen from the proximate test. Nutrient content of the best formula were 1.80% of water, 2.81% of ash, 14.00% of fat, 9.13% of protein, 3.70% of crude fiber, 55.84% of carbohydrate, and 8.3 mg/100 g of iron (high iron). The iron bioavailability was 20.00%. Biscuit with iron microencapsulation can be used as an alternative food to prevent iron deficiency anemia, because every serving size contain 3.32 mg iron which has a claim to food with high in iron.
ID110 - Potential of Sweet Potato Leaves Extract as an Alternative of Functional Beverage for Antihypertensive

IKA PUSPA WINDARDI
Department of Community Nutrition, Faculty of Human Ecology, Bogor Agricultural University, Indonesia

Author’s e-mail: khazahra.23@gmail.com

Hypertension, also known as high or raised blood pressure, was a global public health issue because its prevalence continues to increase. The main aim of this research was to analyze the potential of sweet potato leaves extract as a functional beverage for antihypertensive. This research consist of two stages, the first stage determine the selected formula of Sukuh sweet potato leaves extract. Determination of formula acceptance based on acceptability of 30 semi-trained panelist. There was three formulations of Sukuh sweet potato leaves extract added by brown sugar 10%, 15%, and 20%. Second stage, manufacturing four variants of sweet potato leaves extract are Sukuh, Ungu, Cilembu, and AC using the selected formula for sensory evaluation. Results of ANOVA showed that the formula treatment affect the sweetness of Sukuh sweet potato leaves extract (p=0.021). The selected formula was the extract with additional 15% w/v brown sugar which had acceptance score 75.83%. The results showed that Cilembu sweet potato leaves extract was preferred by panelist with preferences score 5.21 that means scaled from ordinary to like. Sukuh sweet potato leaves extract contains the highest potassium (72.27 mg/200 ml) compared to other formulas. Moreover, Ungu sweet potato leaves has the highest antioxidant activity (840.92 mg/100 g AEAC) than others have. Nutrition contribution of sweet potato leaves extract beverages per serving size (200 ml) for energy, protein, fat, carbohydrate, and potassium (% of RDA for adult woman, aged 19-29 years) were 3.66%, 2.09%, 1.18%, 5.63%, and 1.22% respectively. From these nutritional properties, it is concluded that the sweet potato leaves extract is potential as a functional beverage.

ID114 - The Effect of Nutritional Education using Audio-Visual Media on Knowledge and Attitude of Balanced Diet Guidelines among Elementary School Students in Bogor Indonesia

LEVITA SARI
Students of Community Nutrition, Faculty of Human Ecology, Bogor Agricultural University, Indonesia

Author’s e-mail: lsdarmawan12@gmail.com

This study aimed to determine the effect of nutrition education using video as an audio-visual media on knowledge and attitude of Balanced Diet Guidelines (PGS) in elementary school students of Bogor, Indonesia. Samples of this research were 5th grade (n = 76) of elementary school in Panaragan 1 and 2 Bogor students which were choose purposively based on accreditation of school and school facilities. Quasi experimental research used as research design with pretest-posttest control group design. Intervention was given in a day through lecture with interactive session and video playback which related to four pillars of Balanced Diet Guidelines, there are eating habits, healthy lifestyle, physical activity, and body weighing. Before intervention, questionnaires about characteristics of samples (age, gender, and pocket money), characteristics of samples’ family (family size, parents’ education level, parents’ occupation, and family income) and nutrition information access of samples were filled out by both the groups. Knowledge and attitude questionnaire was completed 3 times, there are pre test, immediately, and 1 month after education. Finally, data were collected and analyzed by Microsoft Excel 2010 and SPSS 16 for Windows. The results showed that characteristic of samples and family, and nutrition information access sample of two groups relatively equal. The results of the analysis with Wilcoxon statistic test on nutritional knowledge and attitude indicate that audio-visual media affect the improvement of nutrition knowledge and attitude of samples. Nutrition knowledge of samples increase from 74.5 to 86.9 at post test 1, and to 82.7 at post test 2. Nutrition attitude of samples is increase from 86.9 to 91.5 at post test 1, and to 90.1 at post test 2. According to the results, video is suggested to be enhanced as an audio-visual media in nutrition education program at school to improve students’ nutrition knowledge and attitude.
ID116 - The Acceptance Level of Audio-visual Nutrition Education Media on Nutritional Guidelines for Balanced Diet towards Elementary School Students

SEILA PRAMADANIA SATIVA
Community Nutrition Program, Faculty of Human Ecology, Bogor Agricultural University

Author’s e-mail: seilasativa@gmail.com

The development of audio-visual nutrition education media in accordance with nutritional guidelines for school-age children on balanced diet is rarely studied in Bogor City, Indonesia. The aims of this study were to develop nutrition education media, which was video about nutritional guidelines for balanced diet, to analyze the level of acceptance towards elementary school students, and to identify the correlation between information access to audio-visual media and acceptance level. The study design was cross-sectional comprised a total of 89 5th grade students which selected purposively from SDN Panaragan 2, Bogor City. The subjects were 45 male and 44 female students aged 10 to 11 years old. The two dimensional cartoon animation video making process include theme selection, illustration making, creating layout, and adding sound such as dubbing, background music, and other additional effects. The evaluation of media was conducted before the intervention by involving non-subject elementary school students to review the media component, assisted by enumerators. The acceptance level of audio-visual media was collected by questionnaire using 4-point Likert scale consisted of several questions related to media component such as illustration, animation, font, sound, and material understanding level. The audio-visual media acceptance level was high, 85.4% subjects had very high preference to the video. There was a significant correlation (p<0.05) between subjects’ access of information and the acceptance level of media. Subjects who had less access of information to both audio and visual media had higher acceptance level of video. Since they were not accustomed to get information from both audio and visual media, they found the video is interesting. This study showed that video can be used as nutrition education media and expected to improve elementary school students balanced nutrition behavior. Further studies need to be done on evaluating student learning outcomes to their nutrition behavior.

ID117 - Formulation, Nutrient Contents, Acceptability of Ganyong Galohgor Cookies for Diabetes Mellitus Patients

SUHARJO, A. R.
Department of Community Nutrition, Faculty of Human Ecology, Bogor Agricultural University, Indonesia

Author’s e-mail: dianauliaratna@gmail.com

Degenerative disease was a consequent of unhealthy lifestyle, food habit, and activity, by which diabetes mellitus is one of them. Diabetes mellitus is a group of metabolic disease characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. Indonesia Basic Health Research (2013) reported that the prevalence of diabetes mellitus in Indonesia was 6.9%, in which 4.8% of them are woman aged 55-64. Selection of the right food for consumption can reduce blood glucose levels. Ganyong flour is one of the carbohydrate rich source food with 5.64% fiber and low GI value. Galohgor is an herbal medicine in Indonesia made from 56 kinds of ingredients derived from 38 types of medicinal plants, 11 types of spices, and 7 types of grains or beans. It has been reported to have a wide range of health benefit as Indonesian traditional medicine, one of them is to reduce the blood glucose levels. Product development for diabetes patients had big potential by combining ganyong flour and galohgor extract into cookies as an alternative snack for diabetic patients. The aim of this study was to formulate the cookies, to perform the nutrient contents analysis, and to execute the acceptability test of ganyong galohgor cookies. The design of experiment used was complete randomized design with four formulas levels, F0 (control), F1 (12.5% ganyong flour, 0% galohgor extract), F2 (10% ganyong flour, 2.5% galohgor extract), and F3 (0% ganyong flour, 2.5% galohgor extract). Determination of cookies acceptance based on acceptability of 34 semi-trained panelist. Ganyong galohgor cookies had 82% acceptance. Nutrient contents of ganyong galohgor cookies were 5.3% (w/w) moisture, 2.4% (d/w) ash, 26.8% (d/w) protein,
3.1% (d/w) crude fiber, and 65.3% (d/w) carbohydrate. The flavonoid count of ganyong galohgor cookies was 22 mg quercetin equivalent/100 g. Ganyong galohgor cookies in one portion size (24 grams) were able to supply 12.0% energy, 1.0% protein, 18.2% fat, 2.8% fiber, and 6.1% carbohydrate for woman aged 50-64 years. These findings suggest that the ganyong galohgor cookies can be used as an alternative snack for diabetics patients due to cookies nutrient contents were already in compliance with Indonesian National Standard as diabetic diet cookies.

ID118 - Information Access and Nutrition Behavior Related to Balanced Nutrition Guidelines of Undergraduate Student at Nutrition Science and Computer Science Major

APRIANI, R.

Department of Community Nutrition, Faculty of Human Ecology, Bogor Agricultural University, Indonesia

Author’s e-mail: iingapriani@gmail.com

Indonesia has a complex nutrition problems, and basically all of that problem causes by inappropriate behavior towards recommendation from nutrition guidelines. Balanced Nutrition Guidelines is an appropriate guidelines for society because these guidelines adding specific portions of food, incorporate daily physical activity, practice of clean and healthy behavior and self-body weighing. However, not many people apply these guidelines in daily life because there still lack of information access about Balanced Nutrition Guidelines. The solution for this problem is by using mass media or other information source because technology development can overspread the information quickly. This study aimed to analyze the information access and nutrition behavior related to Balanced Nutrition Guidelines of Undergraduate Student. This was a cross-sectional study participated by 77 students from nutrition science and computer science program. This study using interview technique with questionnaire. The contents of the questionnaire are personal and family data, seminar participation, information access using media and nutrition behavior. Mostly sample have used internet as media source to access food, nutrition and health information. There were significant differences between nutrition science and computer science students in seminar participation, information access and nutrition behavior (p<0.005). The average of seminar participation, information access and nutrition behavior on nutrition science students was significantly higher than computer science student (p value=0.000). There were no significant correlation between seminar participation and information access with nutrition behavior and between nutrition behavior (nutrition knowledge, nutrition attitude and nutrition practice) on both sample groups. The impact of this study is to represent nutrition information access pattern and nutrition behavior on undergraduate student, especially about Balanced Nutrition Guidelines.

ID122 - Consumption of Fruits and Vegetables may Lower Body Mass Index among Adolescents in Rural Area of Kuala Selangor

ANIS SYUHADA ZAKARIA, WEE LEI HUM, NORIMAH A.KARIM

Nutritional Science Programme, School of Healthcare Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Autor’s e-mail: anissyuhadazakaria@gmail.com

Increasing fruits and vegetables consumption has played important role in weight management among adolescents. This cross-sectional study was carried out to determine the relationship between the consumption of fruits and vegetables with body mass index (BMI) among adolescents. A total of 412 adolescents (n=233 girls and n=179 boys) aged between 13 to 14 years old were randomly selected to participate in this study. Anthropometric measurements taken included weight, height and subsequently BMI were calculated. A 3 days 24-hour diet recall (2 weekdays, and 1 weekend) by face-to-face interviewing was conducted to determine the consumption of fruits and vegetables based on the Malaysian Dietary Guideline 2010 (MDG). 19.5% (n=36) adolescents were thin, 48.1% (n=309) were of normal body weight, 18.6% (n=40) were overweight and 13.8% (n=27) were obese. Based on the 24-hour diet recall, 47.3% (n=195) never consumed fruits. Only 10.7% (n=44) consumed 2 or more serving of fruits per day and meet the requirement. The result also showed 31.3% (n=129) adolescents...
have never taken vegetables in their diet. While only 1.5% (n=6) meet the requirement for consuming 3 servings of vegetables per day. The mean BMI of adolescents who consumed 2 servings of fruits daily were lower (19.86 ± 4.19 kg/m²) than adolescents who never consumed fruits (23.34 ± 4.47 kg/m²). While the mean BMI of adolescents who consumed 3 servings of vegetables were lower (19.20 ± 4.51 kg/m²) than the adolescents who never consumed vegetables (24.32 ± 4.57 kg/m²). Increasing the consumption of vegetables associated with BMI changes (reduced) (odd ratio [OR]: 0.86, 95% confidence intervel [CI], -0.97 to 0.26). However no significance could be obeserved between the consumption of fruits and changes of BMI. The findings of this study suggest that the recommendation intake of fruits and vegetable should not be based on beneficial effects to lowering BMI among adolescents.

ID121 - Risk Factors of Hypertension in Housewives at Pemali Village, Bangka District, Bangka Belitung Province Indonesia

DINI KURNIANINGSIH

Department of Community Nutrition, Faculty of Human Ecology, Bogor Agricultural University, Bogor, Indonesia

Author’s e-mail: dini.kur@gmail.com

Indonesia Basic Health Research (2013) data shows the highest prevalence of hypertension is in Bangka Belitung Province and specifically higher in woman and people who do not work. This research aimed to analyze the risk factors of hypertension in housewives at Pemali Village Bangka District. The design of this study was cross sectional and involved 97 housewives selected using consecutive sampling technique. The inclusion criteria of subject were housewives aged 31-55 years old, no pregnant, non lactating, and willing to be the subject of this research. Subjects’ blood pressure was measured directly using sphygmomanometer by paramedics. Hypertension was defined as systolic blood pressure ≥140 mmHg and/or diastolic blood pressure ≥90 mmHg, or usage of antihypertensive medication. The prevalence of hypertension in housewives at Pemali Village was 32.9%. There was a significant correlation between age (r = 0.282, p = 0.005), menopausal status (r = 0.274, p = 0.007), income per capita (r = -0.232, p = 0.022), body mass index (r = 0.231, p = 0.023), waist circumference (r = 0.267, p = 0.008), and family history of hypertension (r = 0.302, p = 0.003) with the incidence of hypertension. Multiple logistic regression analysis identified the risk factors of hypertension in housewives include age above 45 years old (OR= 5.99, 95% CI 1.82-19.65), body mass index above 25 kg/m² (OR=3.26, 95% CI 1.5-9.25), and family history of hypertension (OR= 2.71, 95% CI 0.86-6.26). It is important for the local government to consider the risk factors as the main components in the promotion of healthy lifestyle among women to achieve optimal health.

ID140 - Effects of Premna oblongifolia Merr. Intervention on Lipid Profile of Adult Male Smokers in Bogor Agricultural University

MARYAM NABILA

Bogor Agricultural University, Indonesia

Author’s e-mail: manabila26@gmail.com

Smoking habit is strongly associated with changes in lipid profile. Premna oblongifolia Merr. is considered to have hypocholesterolemic activity and beneficial effect on lipid profile because of its water-soluble fibre and chemical components such as saponin and flavonoid. This study objective was to analyze the effect of Premna oblongifolia Merr. on lipid profile of smokers with at least one year of smoking cigarette. The inclusion criteria for this study were healthy male, aged 19-35 years old, had normal BMI (18.5-22.9 kg/m²), were willing to consume intervention, underwent no medical treatments, agreed to fill informed consent, and participate until the study ended. The study design was an experimental study with pre-post test control. Twelve subjects were randomly divided into four groups; Control (C), P1 (14-day intervention), P2 (21-day intervention), and P3 (28-day intervention). Subjects of intervention groups were asked to consume 200 grams of Premna oblongifolia Merr. in forms of jelly drink per day (administered daily) and not change their eating pattern (no food refrained). Compliance were monitored daily using questionnaires. 7 ml of blood plasma were taken before and after
intervention, analyzed using a kit, and measured using spectrophotometer at a 500 nm wavelength. Triglycerides, total cholesterols, and HDL-cholesterols were measured using direct method whereas LDL-cholesterol by Friedewald equation. As confounders were controlled, results of ANOVA test showed no significant difference in triglyceride levels whereas Duncan test demonstrated a significant reduction in LDL-cholesterol levels (p<0.05) with the largest decline occurred in P1 (64.2%). HDL-cholesterol levels of intervention groups were increased significantly (p<0.05) with highest increase occurred in P1 (56.4%). This study suggested that consuming green grass jelly for 14 days improved lipid profile and thus can be used as an alternative of plant-based treatment.
AUDIOLOGY AND SPEECH SCIENCE (ANS)
ID17 - Auditory Performance of Paediatric Cochlear Implant Users Under the Malaysian National Cochlear Implant Programme

JULIANA SAMSUDIN, CILA UMAT, SITI ZAMRATOL MAI SARAH MUKARI & QUAR TIAN KAR

Audiology Program, School of Rehabilitation Sciences, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: jue_audio@yahoo.co.uk

Cochlear implant (CI) is widely used to treat people with profound sensorineural hearing loss. The purpose of this study was to investigate the auditory performance of a group of prelingually deafened paediatric cochlear implant users using direct speech perception measures (objective test) and parental questionnaire (subjective test). A total of 48 children with hearing age ranged from 1 to 7 years (Mean = 3.5 ± 1.6 years) participated. Speech perception test was conducted using selected tests from the Malay Evaluation of Auditory Response to Speech (EARS) while parental views of the children’s performance were collected using the Malay version of the Parents’ Evaluation of Aural/Oral Performance of Children (PEACH) questionnaires. The recorded speech stimuli were presented to the children in a sound-field at approximately 65 dB SPL in a sound treated room. The speech perception test results were then categorized using the Malay version of the Categories of Auditory Performance Index (My-CAPI) with 10 categories ranging from ‘0’ to ‘9’. Results showed that most of the children (N=20, 41.7%) were performing at category 2 of My-CAPI (limited closed set speech perception) with three children achieved the maximum category 9 (advanced open-set sentences in +10 dB Signal to Noise Ratio (SNR). There was a significant but weak positive correlation between the hearing age and My-CAPI (r = 0.288; p=0.023). Communication mode was the only demographic factor that significantly correlated with My-CAPI and PEACH scores in quiet (p<0.01). Pearson correlation coefficient showed a strong relationship between the PEACH scores and My-CAPI levels (r = 0.707; p<0.01). The findings suggest that the use of oral communication among the young children with CI is mandatory for a better auditory outcome.

ID18 - Patterns of Arabic consonants’ perception by Malay children with cochlear implants and normal hearing

FARHEEN NAZ ANIS

Audiology program, School of Rehabilitation Sciences, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s email: fareeanis@yahoo.com

The aim of this study was to assess the perception of Arabic consonants among Malay children with cochlear implants (CI) and compared them to a matched group of normal hearing (NH) children. A total of six CI users and 11 NH, with mean hearing age of approximately 7.0 years participated. The recorded consonant-vowel syllables of the 28 Arabic consonants were presented through a loudspeaker at 65 dB SPL and child was positioned at 1 m distance from the loudspeaker. Participants’ tasks were to verbally repeat or point to the associated graphemes on a laminated card sheet following stimulus presentation. A total of 89.3% of the variance was accounted for by the hearing status of the participants. Repetition of phonemes was an easier task for the children than the recognition of graphemes. NH participants performing significantly better than the CI (p<0.05) for both tasks. For both participant groups, significant correlations were found between scores for both experimental tasks. The CI participants repeated a number of phonemes [/b/، /d/، /g/، /k/ and /kʷ] and recognized a few graphemes [/ʃ/، /ش/، /ﻫ/ and /j/] with greater accuracy than would be predicted by the performance of NH listeners. In contrast, repetition of phonemes [/h/، /خ/، /ض/، /ط/، /س/، /غ/ and /n/] and recognition of graphemes [/ɡ/، /د/، /ض/، /ط/، /س/، /غ/ and /ن/] were less precise by CI participants than would be predicted from the performance of NH listeners. The findings suggest that the perception of Arabic consonants among the CI and NH children were different quantitatively and qualitatively.
ID19 - Possible Clinical Markers for Malay Children with Specific Language Impairment (SLI): A Study of Syntactic Account

NORSOFIAH ABU BAKAR

Clinical Linguistic Program, School of Rehabilitation Sciences, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: norsofiahabubakar@yahoo.com.my

Specific Language Impairment (SLI) is a condition in which a child's language ability does not correlate with the age of his peers (delay of ≥ 1 year), and it is not due to hearing problems, low intelligence score (IQ), and emotional, articulation or neurological problems. This study aims to determine the language abilities specifically the syntactic abilities of Malay children with SLI over three syntactic structures in Malay which include passives, relative clause and wh-questions and towards the purposes of determining which structures could be clinical markers for Malay children with SLI in comparison to their typically developing peers. A total of 45 subjects were recruited and divided into three groups: children with SLI (n = 15, mean age = 9; 7), the control group which are matched by age (CA) (n = 15, mean age = 9; 67) and the control group which are matched by language age (LA) (n = 15, mean age of 5; 73). Activities conducted were sentence-to-picture matching and picture description. The results showed that there are significant differences between children with SLI, the LA group and the CA group for comprehension and production of passive sentences (p = .001 and p = .000), comprehension and production of relative clauses (p = .003 and p = .000), and comprehension and production of wh-questions (p = .000 and p = .000). In terms of candidates for clinical markers, di-passives, comprehension of which (object) relative clause and production of wh-questions showed highest sensitivity (80%) and specificity (90%). These tendencies could be attributed to the complexity of the syntactic structures concerned, stages of maturation among subjects and the diglossic language variety used (e.g. formal Malay versus colloquial Malay). The results also suggested that difficulties with di-passives, object relative clause and wh-questions structures could be important components of Malay SLI profiling.

ID27 - The Performance of Dyslexic Children with and without Auditory Processing Disorders in Klang Valley

SITI SURIANI CHE HUSSIN, NASHRAH MAAMOR & RAFIDAH MAZLAN

Audiology Program, School of Rehabilitation Science, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: suria17178@yahoo.com

Developmental dyslexia or specific reading difficulty is the commonest form of learning disability in children. An estimated of 17% school going children in Malaysia have dyslexia with various degree of reading ability that may be associated with their auditory processing skills. The aim of this study was i) to describe the auditory processing skills of children with developmental dyslexia in Malaysia, ii) to determine the relationship with their reading abilities and iii) to compare the changes in performance post remedial intervention between children with and without APD. Normal hearing (N= 81) children with dyslexia, aged 7 to 12 years old participated in the study (mean age =8.7, SD =1.4 ). They included 66 boys and 15 girls, with a gender ratio of 4:1. All children completed a battery of central auditory processing (CAP) tests and underwent intervention program for 12 weeks. The children are categorised into APD and non APD group based on their CAP test results. Reading and spelling performance were assessed before and after intervention program. Using ASHA (2005) criteria for diagnosing central auditory processing disorder (CAPD), 60.5% of the children with dyslexia were found to have CAPD. The most affected CAP skills was binaural integration (59.3%) and temporal processing (48.1%). A Pearson’s chi-square test of contingencies (with α= .05) showed that none of the auditory processing skills measured were related to the children’s reading ability. After 12 weeks of remedial intervention, both groups showed significant improvements in their reading scores, (p <. 05). However, no significant differences was found in the outcome of reading performance in post remedial intervention between the two groups (p >.05) There is a high prevalence of APD among children with dyslexia in Malaysia. Remedial intervention can provide significant improvement for both groups. Deficits in auditory processing is
not the only factor that contributes to ones ability to read. However, we would certainly recommend APD screening for dyslexic children in Malaysia.

ID32 - A Normative Study of Otolith and Semicircular Canals Function in Children

NURUL AIN ABDULLAH, NOR HANIZA ABDUL WAHAT, IAN CURTHOYS, HAMIDAH ALIAS & ASMA ABDULLAH

Audiology Program, School of Rehabilitation Sciences, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: ummuameer20@gmail.com

Early identification of vestibular dysfunction and balance problem in children undoubtedly is essential for their general well-being. The identification process can be challenging and difficult compared to adults. Owing to the fact of lack of knowledge in diagnosing vestibular and balance ability in children, we conducted a preliminary study as to observe the feasibility of using Vestibular Evoked Myogenic Potential (VEMP), video Head Impulse Test (vHIT) and Bruininks Oseretsky Test of Motor Proficiency II (BOT-2). VEMP is used to test the dynamic function of the otoliths, vHIT is to determine the function of all six semicircular canals (SCCs) on both sides, and gross motor subset of BOT-2 is to test the balance performance in children. Twenty one normal healthy children, age ranged from 6 to 15 years old (12 boys and 9 girls; mean age 11.15 ± 2.54 years) participated in the study. They underwent the ocular VEMP test using minishaker as bone conduction stimulus and cervical VEMP using air conduction stimulus. All six SCCs were assessed using the vHIT. Bilateral Coordination, Balance, and Running, Speed and Agility which are the three subset of BOT-2 gross motor assessment were also conducted. The measurement included were the mean for the latency and amplitude of n10 (for oVEMP), the mean latency and amplitude of p13 and n23 as well as inter-amplitude of p13-n23 (for cVEMP), vestibular ocular reflex (VOR) gain for vHIT and Scale Score for BOT-2. Strategies and tips used for effective recording in young children will also be discussed. This study suggested that VEMP, vHIT, and BOT-2 are feasible and doable for vestibular assessment in young children. However, experienced clinician(s) and accurate testing technique employed will add to the robustness of the process.

ID36 - Profiling the Pediatric Cochlear Implant Recipients under the Ministry of Health Cochlear Implant Program

YUSOFF, Y. M.1,3, UMAT, C.1,2 & MUKARI, S. Z. M.1,2

1Audiology Program, School of Rehabilitation Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
2Institute-HEARS, Universiti Kebangsaan Malaysia, Kuala Lumpur
3Hospital Sultanah Bahiyah, Alor Setar, Kedah

Author’s e-mail: yuzot143@gmail.com

The Ministry of Health (MoH) commenced the National Cochlear Implant (CI) Program in 2008. As of November 2014, the program has implanted 205 individuals with hearing losses, many of whom are pediatric recipients (71%) with prelingual deafness. This study aimed to profile the prelingually deafened pediatric cochlear implant recipients under the MoH CI program. The data reported here were from a total of 121 recipients (82.8%) from all the nine satellite hospitals in the program. There were 58 males and the majority of the cases were Malay (66.9%). From the cases reviewed 39 (32.2%) were high risk for permanent hearing loss and the majority (46%) had multiple risk factors. In this cohort, only 12 children (9.9%) were identified through the hearing screening program. The age of diagnosis of hearing loss ranged from 1 to 46 months with a mean age of 24.3±10.2 months. Hearing aids were fitted at the age of 4 to 46 months with a mean of 27.5± 9.9 months. The average age of implantation was 41.5±10.3 months. The mean overall waiting period from the first visit to the audiologist to the time when the cochlear implant was activated was 18.5±9.1 months. Descriptive
findings indicate that the children received their implants at a relatively late age for speech and language development. The existing national newborn hearing screening (NHS) program needs to be tighten and strengthen so that it can be the main feeder for the pediatric CI program under the MoH. Subsequently, it is hoped that early identification of hearing loss will lead to earlier age of implantation among the pediatric patients in the future.

**ID52 - Exploring the Impact of Hanen More Than Words Program on Parents of Children with ASD in Malaysia**

SHERIN SOKMUM, SUSHEEL KAUR DHILLON & SANDRA VANDORT

Speech Science Program, School of Rehabilitation science, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: sherinsokmum@gmail.com

This study was aimed at investigating the viability and effectiveness of the Hanen More Than Words (HMTW) program for urban Malaysian parents of young children with Autism Spectrum Disorder (ASD). The study was a controlled trial study that involved 31 children (27 boys, 4 girls; M= 34.58 months, SD= 3.67) who met criteria for ASD and their parents. There were three measurements periods; prior to intervention (Time 1) and at 3 and 5 months after the start of intervention (Time 2 and 3). The outcome measures assessed were changes in parental facilitative strategies and the children’s growth in vocabulary and social communication skills. Results indicated that there was a significantly higher gain on using the facilitative communication strategies among parents in the HMTW intervention group during parent-child interactions and children showed an increased in vocabulary and instances of social interaction. The parents agreed that their mastery of facilitative communication strategies increased and they provided positive feedback about the HMTW approach. The results indicated that the HMTW program worked with local urban populations. The training was supported by Malaysian parents and had measurable effect on both parents and children.

**ID77 - The Effects of Familiar, Unfamiliar Music and Audiobooks Exposure on Speech Parameters of Elderly Alzheimer’s Disease Patients: A within Case Studies**

FIDELIA CHAN XUE NING1, SITI ZAMRATOL-MAI SARAH MUKARI & KARTINI AHMAD

Speech Science Program, School of Rehabilitation Sciences, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: fideliafaithchan@gmail.com

Alzheimer’s disease is a cognitive disorder common among the elderly whereby neurodegeneration occurs rapidly as a result of decline in brain activity. There has been many studies linking music memory with cognition among patients with Alzheimer’s disease. However, the types of music exposed, the familiarity of the music and their effects on speech production is still not adequately explained. Improvement in speech can be demonstrated in alteration of several speech parameters. This multiple case study (n = 3), seeks to investigate the effects of familiar and unfamiliar music on the speech fundamental frequency (F0), intensity range, and speech rate of 3 elderly subjects with Alzheimer’s disease. The speech parameters after exposure to familiar and unfamiliar music were measured longitudinally over a period of 21 weeks. A listening task to an audiobook was treated as control. Data revealed that in all of these subjects, there was wide variability in performance with no common pattern for familiar music. However, for unfamiliar music, two subjects showed increase in their speech rate. The third subject showed increase in F0 range. It is suggested that there may be more to understand how familiar and novel stimuli influence speech production in Alzheimer’s disease patients.
ID134 - Effects of Phonological Awareness and Semantic Cues on the Production of Errors in the Learning of New Words among Arabic-Speaking Jordanian Preschool Children with SLI

AMER MOHAMMAD AYASREH

Speech Science Program, School of Rehabilitation science, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: ayasreh_amer@yahoo.com

Existing literature shows that children with SLI (Specific Language Impairment) face difficulties and limitations in word learning compared to TD (Typical Developing) children, thus affecting their language acquisition process. The current study explores the effects of phonological awareness and semantic intervention on errors type when learning new words among Arabic-speaking preschool children in Jordan. Two groups of preschool children were recruited for the current study. The first group consisted of children with SLI who were attending speech therapy in language centres. The other group consisted of TD children who were attending a kindergarten and received conventional instruction at the kindergarten. Both groups of children were matched in terms of IQ score, age, gender, and socioeconomic status. A five-day word learning experiment was carried out in the current study. On Day 1, both groups were exposed to fast mapping of words, followed by word learning with semantics and phonological cues in Days 2, 3, and 4. On Day 5, a word learning test was given to the children. After analyzing error patterns of Day 1, these error patterns were compared between those in Day 2, 3, 4, and 5. This was done to follow the changes of the errors patterns after the given cues and to evaluate the influence of the cues on the errors responses. Findings from this study suggest that SLI children produced more and different error patterns compared to TD children and the cues used altered the types of their error patterns.

ID143 - Phonological Awareness Skills among Bilingual Chinese Children in National Schools in Klang Valley

CHAN SHEOK EE1, ROGAYAH A RAZAK1, LIM HUI WOAN1 & MANISAH MOHD. ALI2

1Speech Science Program, School of Rehabilitation Sciences, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur
2Faculty of Education, Universiti Kebangsaan Malaysia, Bangi, Selangor

Author’s e-mail: sheokee.chan@gmail.com

Phonological awareness skills are important skills to master in the learning of reading and writing among bilingual children. The lack of phonological awareness skills can result in reading and writing difficulties. The study aims to identify the ability of reading and writing of Chinese primary school children learning English and Malay. The study also wants to discuss the phonological awareness problems faced by these students. 78 students aged between 7 to 9 years old were selected and categorized into good readers (n=44) and poor readers (n=34) based on the results of the School Based Assessment and further categorized into three age groups. Subjects were selected from the national primary schools located around Klang Valley. They were administered bilingual English-Malay literacy and phonological awareness tasks. In general, positive age effects were found for the literacy and phonological awareness skills, for both languages among good readers only ($p<0.05$). There are significant differences in the performance of literacy and phonological awareness skills between the two groups of readers’ for all age groups in both languages ($p<0.01$). The good readers showed better performance in English for both skills across all age groups. Poor readers, however, showed better performance in Malay literacy. In spite of that, most subjects scored better in the English phonological awareness tasks. Language effects were only found for the literacy skills among good readers aged 8 years old ($p=0.048$). However, there is no significant difference in phonological awareness skills between both languages among good readers and poor readers for all ages. The relationship between the overall scores of phonological awareness and literacy skills in
English ($r_s=0.868$) and Malay ($r_s=0.875$) are significant ($p<0.001$). This could be due to the difficulty level of the tasks in the respective languages, different spelling systems and student’s orthographic knowledge of the English language. The error patterns in literacy and phonological awareness skills for both languages were also scrutinized qualitatively. The educational implications of the present findings are also discussed.
PHYSIOTHERAPY AND OCCUPATIONAL THERAPY (POT)
ID11 - The Effectiveness of Molta-P Programme™ in Improving Performance of Upper Extremity Function in Children with Cerebral Palsy: Parents’/Caregivers’ perspectives

NUR ZAIDAHZULKAPLI¹, SAZLINA KAMARALZAMAN¹ & NUR ZAKIAH MOHD. SAAT²

¹Occupational Therapy Program, School of Rehabilitation Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
²Biomedical Science Program, School of Diagnostic and Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: nurzaidahzulkapli@gmail.com

Postural control problem due to motor impairments lead to abnormal posture and positioning limitations in children with cerebral palsy (CWCP). This will restrict the CWCP’s upper extremity function and subsequently limit their performance when doing activities. However, repetitive practice of activities/play and proper positioning can help CWCP to improve their upper extremity function. Thus, these factors lead to the development of MOLTA-P Programme™. It is a programme consists of activity module and adaptive seating or corrected positioning. Hence, this research was conducted to investigate the effectiveness of MOLTA-P Programme™ in improving performance of upper extremity function in CWCP. Study methodology comprised of a single subject design and were conducted for 12 weeks. Canadian Occupational Performance Measure (COPM) were administered among 11 toddlers and school-age CWCP (age 2.5-8 years, mean 4.27) to assess CWCP’s upper extremity function performance at the subjects’ home or organization. Results showed that there were significant changes on subjects’ upper extremity function performance during activities according to mothers’/fathers’/caregivers’ observation and the mothers’/fathers’/caregivers’ level of satisfaction towards CWCP’s activities performance at the subjects’ home or organization. Findings imply that MOLTA-P Programme™ is effective for CWCP in improving performance of upper extremity function. MOLTA-P Programme™ should be recommended as home and early intervention programme because it promotes activities/play to parents/caregivers as therapeutic modalities besides involving them in their CWCP treatment planning.

ID28 - The Association between Coping Skills of the Parents and Motor Performance of Their Child with Learning Disabilities

NAZURAH ALWI¹, DZALANI HARUN², BAHARUDIN OMAR³ & MAHADIR AHMAD⁴

¹Physiotherapy Program, School of Rehabilitation Science, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur
²Occupational Therapy Program, School of Rehabilitation Science, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur
³Biomedical Science Program, School of Diagnostic & Applied Health Science, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur
⁴Health Psychology Program, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: nazurahalwi@gmail.com

Children with learning disabilities (LD) may have difficulty in motor performance that negatively affects their functional activities. Parents of children with LD also face challenges for adapt coping strategies while handling their children with LD. This study was carried out to determine the relationship between coping skill among parents of children with learning disabilities (LD) and motor performance of their child. Participants were 137 parents having a child with LD. Parents were asked to complete the Family Crisis Oriented Personal Evaluation Scale (F-COPES) and a brief demographic questionnaire. The motor performances of the children with LD of the responding parents were assessed using Movement Assessment Battery for Children-2 (MABC-2). F-COPES scores were calculated for each domain and the total F-COPES score. MABC-2 score and total
Impairment score (TIS) were obtained. Spearman’s correlation analysis was carried out to determine the correlation between F-COPES and MABC-2. 108 (85%) of the children with LD having significant movement difficulty and 91(66%) parents having good coping skills in the present study. The coping skills of caregivers raising a child with LD are positively correlated with their child motor performance, $r_s (135)=0.234$, $p=0.01$. The results of the study suggest that coping skills of parents having children with LD was associated with the motor performance of their child. These results emphasize the importance of considering coping skills of the parents in designing the intervention program for children with LD.

ID37 - The Influence of Limb Dominance on Squatting Kinematics in Multiplanes of Motion Among Healthy Individuals

FAIRUS FARIZA ZAINUDIN$^{1,2}$, NOR AZLIN MOHD NORDIN$^1$, DEVINDER KAUR AJIT SINGH$^1$, KARTINI AHMAD$^3$ & BAHRUDIN OMAR$^3$

$^1$Physiotherapy Program, School of Rehabilitation Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
$^2$Department of Health Sciences, Faculty of Sports Sciences and Coaching, Universiti Pendidikan Sultan Idris, Tanjong Malim, Perak
$^3$Biomedical Science Program, School of Diagnostic and Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: fairus.zainudin@gmail.com

Limb dominance (LD) is known to be associated with the existence of movement asymmetry during functional activity. However, it is not known if movement asymmetry occurs in multiplanes of motion during half-squat (HS) among healthy population. Therefore, this study aims to assess the effects of LD on multiplanes of motion and to determine the level of asymmetry during HS among healthy individuals. Fourteen participants aged 24.8 years (SD 5) voluntarily participated in this laboratory-based study. All subjects performed six HS trials with one-minute rest interval between each trial. LD was confirmed for each subject subjectively by determining preferred leg to kick a ball. Bilateral hip, knee and ankle joint angles in multiplanes and peak vertical ground reaction force ($\text{VGRF}_{\text{peak}}$) during HS were captured using motion analysis system and force plates. Paired-t test was used to analyze variables of interest at 20% (HS20) and 50% (HS50) descend of HS. Modified Symmetry Index (MSI) was used to determine the magnitude of movement asymmetry. Analysis at HS20 showed a significant difference between dominant and non-dominant hip (sagittal & frontal), knee (sagittal) and ankle joint angles (sagittal & frontal) $(p<0.05)$. At HS50, significant difference between dominant and non-dominant hip (frontal) and ankle joint angles (sagittal & frontal) $(p<0.05)$ were demonstrated. $\text{VGRF}_{\text{peak}}$ of non-dominant leg was significantly higher than dominant leg $(p<0.05)$. Mean asymmetry was less than 8%, measured at sagittal plane of the three joints. However, more than 24% asymmetry were found at frontal and transverse planes at the joints. $\text{VGRF}_{\text{peak}}$ analysis demonstrated more than 60% asymmetry between dominant and non-dominant limb. Kinematic and kinetic differences exist between dominant and non-dominant limb, which occurs in multiplanes of motion during HS task among healthy participants. Clinically, therapist should consider the effects of LD when evaluating HS performance in rehabilitation.
ID38 - Feasibility of Using Digital Photogrammetry Method with Web Plot Digitizer for Forward Head Posture Assessment

SURESH MANI¹, DEVINDER KAUR AJIT SINGH¹, SHOBHA SHARMA², BAHARUDDIN OMAR³ & YUGHDTESWARI MUNIANDY¹

¹Physiotherapy Program, School of Rehabilitation Science, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
²Speech Science Program, School of Rehabilitation Science, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
³Biomedical Science Program, School of Diagnostic and Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: vemsuresh@gmail.com

Using digital Photogrammetry for forward head posture (FHP) assessment is not common in clinical practice. This may be due to technical difficulties, high cost and complexity of using posture assessment software. However, with advancement in information technology and increased access to its resources, a number of open resource software application are available currently for measurement of forward head posture, for example digital Photogrammetry method with web plot digitizer (WPD). To determine the feasibility of forward head posture measurements using digital Photogrammetry method with WPD. A total of 16 subjects with neck pain were recruited for this study. Sagittal head tilt angle (SHA), craniocervical angle (CCA), and shoulder angle (SA) were measured using digital Photogrammetry method. WPD, a window based software was used to measure angles. CCA and SA were lower (CCA = 43.54°, SA=49.39°) in subjects with neck pain as compared with normative value (CCA = 50°, SA= 52°). These results suggest FHP and protracted shoulder among subjects with neck pain. Subjects with neck pain demonstrated high sagittal head tilt angle (SHA =19.89°), indicating increased upper cervical extension. Quantitative FHP measurements is feasible using digital photogrammetry with WPD software along with basic computer resources. This method may be useful at clinical settings as it is simple, objective and inexpensive to measure FHP.

ID43 - Level of Spasticity, Sensory Deficits and Functionality among Stroke Survivors with Upper Limb Dysfunction in the Community

NOOR HAZILAH OMAR, NOR AZLIN MOHD NORDIN, CHAI SIAW CHUI & DEVINDER KAUR AJIT SINGH

School of Rehabilitation Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: hazilah_omar@yahoo.com

Spasticity and sensory deficits are common impairments affecting upper limb functionality following stroke. In Malaysia, despite the increasing number of stroke survivors, little is known about spasticity, sensory deficits and functionality level of upper limb among this population. To examine upper-limb-specific spasticity, sensory deficit and functionality level among stroke survivors residing in the community. A cross sectional study was conducted among 65 stroke survivors with upper limb dysfunction (35 males, 30 females; age = 64.83±8.05 years) who attended community stroke rehabilitation program. Tardieu Scale and Nottingham Sensory Assessment were used to assess spasticity and sensory perception, respectively. While functionality were identified using Jebsen-Taylor Hand Function Test (JTHFT), the upper limb items of Stroke Specific Quality of Life Scale (SSQOL) and the Lawton Instrumental Activities of Daily Living Scale. Up to 58.5% of the stroke survivors have spasticity, 52.30% of them have tactile impairment and 46.2% have proprioception problem in the affected upper limb. Based on SSQOL results, 64.7% of the survivors have difficulty in writing, followed by opening a jar (64.6%) and putting on sock (58.5%). Specifically, 73.0% of stroke survivors with dominant affected hand (N=37) were unable to complete writing and stacking checkers (56.8%) tasks, with 48.6% of them unable to complete four other tasks of JTHFT. Majority of the stroke survivors had limited instrumental activities of daily living skills (mean: 3.26 ± 2.41), especially in ability to shop (83.0%), preparing food (78.5%) and handling finance (64.6%). Presence of spasticity, sensory deficit and functional impairment are
significant among stroke survivors with upper limb dysfunction. Rehabilitation professionals may use these information in planning effective therapy to enable greater upper limb recovery.

ID45 - Cost Benefit of Community-Based Rehabilitation for Children with Disability – Patient’s Perspective.

NURUL ANISAH, JAAFAR1,2, HALIZA, HASAN1, NOR AZLIN, MOHD NORDIN2 & SYED MOHAMED ALJUNID1,3

1International Centre for Casemix and Clinical Coding, Faculty of Medicine, Universiti Kebangsaan Malaysia, Cheras, Kuala Lumpur
2Physiotherapy Program, School of Rehabilitation Science, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur
3Department of Health Policy and Management, Faculty of Public Health, Kuwait University, Kuwait

Children with disability usually require long-term and continuous rehabilitation. Community-Based Rehabilitation (CBR) was developed to fulfil this need and has benefited disabled children of various ages in Malaysia. However to date, no research is available on cost-benefited of CBR on the children in the country. This information is important because, although the government largely fund rehabilitation of the children at CBR, additional cost are still bourned by caretakers or parents and may impose financial burden on them in a long run. The objective of this study was to assess the patient’s cost and outcome gained among children following 6 months of rehabilitation at CBR. This study involved 220 children with disability aged 4 to 18 years old from 29 CBR centres in Pahang, Terengganu and Kelantan. Patient’s cost was estimated using activity-based costing approach, with the use of self-administered questionnaire. Outcome of rehabilitation was measured in term of changes in disability level, using Barthel Index. The results showed that the mean number of therapy session was 63.21 (SD = 33.86) in the 6 months period. The mean patient’s cost was RM 1183.40 (SD = RM1628.60). The highest cost component was travelling/transportation cost (60.7%) and medicine and supplement (16.8%). There was a small but significant increase in the Barthel Index score of the children following rehabilitation, mean (SD) = 0.90 (4.54) (p = 0.003). This study found that, although beneficial, the outcome gained through CBR is too small for the amount of money spent by the caretaker’s/parents. Review of the therapy program needed to improve the cost-benefited of CBR for the disabled children.

ID53 - Prevalence of Self-Reported Neck and Shoulder Musculoskeletal Symptoms among Computer Users

AMBUSAM SUBRAMANIAM1,2, DEVINDER KAUR AJIT SINGH1 & BAHARUDIN OMAR3

1Physiotherapy Program, School of Rehabilitation Sciences, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur
2Physiotherapy Department, Faculty of Allied Health Professions, Ainst University, Kedah
3Biomedical Science Program, School of Diagnostic & Applied Health Science Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur

There is a potential risk of work related neck disorders among the computer users. Prevalence work related neck and shoulder disorders among computer users has been reported widely. However, there is limited information on the prevalence of work related neck and shoulder disorders with related disability among computer users in Malaysia. A modified version of the Standardized Nordic Questionnaire (SNQ) and Neck Pain Functional Limitation Scale (NPFLS) were administered to determine the prevalence of work related neck disorders and measure disability related to neck pain among 348 computer users. The overall prevalence of neck and shoulder pain were 76.7% and 61.2% respectively. About 12% of neck pain and 10% of shoulder pain computer users reported to have changed their jobs. Approximately 13% of neck pain and half of the shoulder pain computer
users reported to reduce their activity during the last 12 months due to the pain. There was a higher percentage of functional activities and psychological factors related disability among computer users. The results of this study suggest high work related neck disorders among the computer users. Effective prevention strategies should be implemented to reduce the frequency and burden of neck and shoulder pain among computer users.

ID54 - Which Physical Performance Measure Best Predicts Osteoporotic Fractures?

CHUA SIEW KUAN, DEVINDER AJIT KAUR SINGH, SABARUL AFIAN MOKHTAR, BALA S RAJARATNAM, RAYMOND LEE Y. W.

1Department of Physiotherapy, Faculty of Health Sciences, UiTM Cawangan Puncak Alam, Puncak Alam, Selangor
2Physiotherapy Program, School of Rehabilitation Science, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur
3Department of Orthopaedic and Traumatology, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre
4School of Health Sciences, Nanyang Polytechnic, Singpore
5Department of Life Sciences, University South Bank, United Kingdom

Author’s e-mail: chuasiewkuan@gmail.com

Osteoporotic vertebral fracture (OVF) is associated with functional impairments. Early identification of individual with risk of osteoporotic fracture may assist in prevention or recurrent OVF. The objective of this study was to determine if physical performance was a predictor of osteoporotic fractures. This cross-sectional study involved 105 older adults aged 50 and above whom attended the orthopaedic clinic Hospital Canselor Tuanku Muhriz Universiti Kebangsaan Malaysia from January to December 2015. Back extensor muscle strength (BES) and dominant hand grip strength (HGS) were measured using a load cell and hand-held dynamometer respectively. Short Physical Performance Battery (SPPB) evaluated overall physical performance. Risk of osteoporotic fractures was assessed using FRAX calculator (Singapore prediction algorithm) with the cut-point of 10%. Data was analysed using multiple linear regression with osteoporotic fracture as a dependent variable, and BES, dominant HGS and SPPB as the independent variables. Simple linear regression findings were a significant association between BES (p<0.05), SPPB score (p<0.01) and dominant HGS (p<0.001) with predicted osteoporotic fractures. Multiple stepwise regression analysis found dominant HGS as the only predictor of osteoporotic fractures in adults and accounted for 15.9% of the total variance. Decline in physical performance of the dominant HGS can predict the risk of osteoporotic fractures. (202 words)

ID59 - Changes in Foot Mechanics when Carrying Incremental Loads among Adults With and Without Low Back Pain

DEEPASHINI HARITHASAN, DEVINDER KAUR AJIT SINGH & BAHARUDIN OMAR

1Physiotherapy Program, School of Rehabilitation Sciences, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur
2Biomedical Science Program, School of Diagnostic & Applied Health Science, Faculty of Health Science, Universiti Kebangsaan Malaysia

Author’s e-mail: deepa_shini@hotmail.com

The aim of our study was to investigate the changes in the foot mechanics when carrying incremental loads (no load, 5kg, 7.5kg and 10kg) using one hand between adults with and without low back pain (LBP). A total of 20 adults with non-specific LBP and 20 matched individuals without LBP were recruited according to the predefined recruitment criteria. The foot mechanics was measured in standing position and during walking while carrying incremental loads (no load, 5kg, 7.5kg and 10kg) using their right hand on a Matscan pressure assessment system. Parameters measured were plantar pressure (PP), maximum force (MF) and contact area...
ID68 - Outcomes of Circuit Class Therapy on Community Reintegration and Quality of Life of Stroke Patients

SHARMILA GOPALA KRISHNA PILLAI, NOR AZLIN MOHD. NORDIN & DEVINDER KAUR AJIT SINGH

Physiotherapy Program, School of Rehabilitation Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia Kuala Lumpur

Author’s e-mail: sharmilapillai89@gmail.com

Circuit class therapy (CCT) is commonly utilized as one of the physiotherapy methods in the management of community dwelling stroke patients. However benefits of CCT in improving community reintegration level and health related quality of life of stroke patients remains unclear. The objective of this study was to evaluate the outcomes of CCT against usual therapy on community reintegration level and health related quality of life among community dwelling stroke patients. This was an assessor blinded randomised controlled trial. Stroke patients (N=40) were allocated either into CCT (n=19) or usual therapy (n=21) using stratified (age, severity level) block randomization method utilizing concealed allocation method. Both types of therapy were conducted at Universiti Kebangsaan Malaysia Medical Centre (UKMMC) once a week for 3 months or 12 sessions. Measurements were taken at pre and post intervention using Reintegration to Normal Living Index (RNLI) and EuroQOL 5 Dimensions (EQ5D). Data were analysed using intention-to-treat analysis approach using 2X2 Mixed model ANOVA. Both therapy groups were comparable (p>0.05) before the commencement of the therapy. Results showed that there was a significant time effect for RNLI score and EQ5D score (p<0.05). However, no significant group or interaction effect (p>0.05) were found for RNLI score and EQ5D score. The results suggest that CCT is as effective as usual therapy in improving community reintegration and health related quality of life of stroke patients. CCT is in a group format which requires low number of therapists, therefore, CCT may be a better option for cost effective therapy.

ID94 - Lumbar Curvature Changes after Repeated Functional Tasks Among Adults with Low Back Pain

NANCY G. J1, 2, NOR AZLIN MOHD NORDIN1 & DEVINDER KAUR AJIT SINGH1

1Physiotherapy Program, School of Rehabilitation Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
2Ministry of Health Malaysia, Bahagian Khidmat Pengurusan, Aras 7 &8, Blok E7, Kompleks E, Pusat Pentadbiran Kerajaan Persekutuan, Putrajaya

Author’s e-mail: nczette@gmail.com

Lumbar curvature (LC) changes have been demonstrated among adults with low back pain in different static postures. However, information on LC changes after repeated functional tasks among adults with LBP is limited. The aim of this study was to examine LC changes after repeated functional tasks among adults with LBP. Sixty four adults without LBP (n=21), acute LBP (n=22), and chronic LBP (n=21) participated in this study. Participants with LBP were recruited from an outpatient physiotherapy department and participants without LBP were recruited through a local advertisement. LC was measured using inertial sensors attached at 1st lumbar (L1) vertebra and 2nd sacrum (S2) before and after the participants performed repeated functional
ID96 - Identification of Falls Risk among Older Adults: What Parameters Predict Best?

AZIANAH IBRAHIM¹, DEVINDER KAUR AJIT SINGH¹ & SUZANA SHAHAR²

¹Physiotherapy Program, School of Rehabilitation Science, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
²Dietetic Program, School of Healthcare Science, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: aziana_91@yahoo.com

Early detection of falls risk among older adults using simple tools may assist in falls prevention strategies. The aim of the present study was to identify the best parameters to predict falls risk, i.e. either combined timed up and go (TUG) test, socio-demographic factors with self-rated multifactorial questionnaire (SRMQ) or TUG on its own. Physical assessment of TUG test, socio-demographic factors, and a self-rated multifactorial questionnaire consisting of 5 falls related questions was used to screen for falls risk among 583-community dwelling older adults (mean age:68.2±5.9 years) recruited randomly from the state of Johor and Selangor. Respondents were categorised into fallers and non-fallers based on their history of falls in the past 18-months. This study is part of a larger scale longitudinal study on neuroprotective model for healthy longevity (LRGS TUA). A total of 87 respondents were classified as fallers (14.9%). Fallers significantly scored more points on questions (Q) related to previous falls history-Q1 (OR 2.4, 95%CI; 1.4-3.9), unsteadiness on walking-Q3 (OR 1.9, 95%CI; 1.3-3.1), and worried of falling-Q5 (OR 1.8, 95%CI; 1.1-2.9), compared to non-fallers. Multivariate logistic regression analysis showed that model (x²(7)=27.43, p=0.001, Nagelkerke R²=0.08) consisting of TUG test (OR, 1.6; 95%CI, 1.0-2.6), socio-demographic factors (Gender: OR, 1.6; 95%CI, 0.9-2.6, Cataract: OR, 1.9; 95%CI, 1.0-5.5) and SRMQ (Q5-OR, 1.5; 95%CI, 0.9-2.5), predicted falls better than the model with TUG on its own (x²(1)=7.03, p=0.008, Nagelkerke R²=0.02). Combined socio-demographic factors, self-rated multifactorial falls related questionnaire along with physical assessment using TUG is more favorable as the initial falls risk screening tool among community dwelling older adults.

ID123 - Prevalence of Work Related Musculoskeletal Disorders among Linemen Profession Working in the Electrical Industries

VINOTHINI PADMANATHAN

School of Rehabilitation Science, Faculty of Health Science, Universiti Kebangsaan Malaysia

Author’s e-mail: vinothini.padmanathan@gmail.com

The extremely physically strenuous job environment contributes significantly to the occurrence of the work related musculoskeletal disorders (WRMDs) among electricity linemen. However, the pattern of WRMDs among linemen is less studied. The aim of the current study is to determine the prevalence rate of WRMDs among linemen professionals. In addition, the study also looks into the association between age and smoking on tasks for two hours in a simulated home environment. LC was measured in a static position (standing) and calculation was derived from the angles between the two tangents of L1 and S2 using Cobb’s principal. Data was analysed using repeated measured ANOVA with age, gender and BMI as covariates. A significant main effect of time and group (p<0.05) was demonstrated in minimum and maximum LC following the two hours functional tasks. Post hoc analysis using Bonferroni showed that minimum LC in adults with acute LBP was significantly different compared to those with chronic and without LBP. Maximum LC in adults with acute LBP was significantly different compared to only adults with chronic LBP. There was no interaction effect of time and group for both minimum (p=0.17) and maximum (p=0.62) LC. The results demonstrated significant changes in minimum and maximum LC. Participants with acute LBP showed the least changes in minimum and maximum LC compared to adults with chronic LBP and without LBP. This may be due to the protective mechanism among adults with acute LBP to prevent further strain on lumbar muscles and ligaments.
the WRMDs among the linemen. The Standardized Nordic Questionnaire was used to study the prevalence of WRMDs for the previous 12 months among 105 linemen. The analysis was completed using descriptive statistics to determine the prevalence rate of musculoskeletal symptoms. The Fishers Exact Chi Square Test was used to evaluate the association between smoking and age on the WRMDs among linemen profession. The back region was mostly affected with (82.9%, n= 87) followed by shoulder region (72.4%, n= 76). There was a significant association (p <0.05) between smoking and age on the development of WRMDs in different body regions among linemen population. High prevalence of WRMDs was identified among linemen professionals. Therefore, an immediate intervention program needs to be implemented to minimize the occurrence of WRMDs among electricity linemen population.

ID124 - Feasibility and Outcome of School-Based Neuromotor Task Training (NTT) among Children with Developmental Coordination Disorder (DCD)

NOR AZIZAH MOHAMAD & NOR AZLIN MOHD NORDIN

Physiotherapy Program, School of Rehabilitation Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia Kuala Lumpur

Author’s e-mail: azizahphysio@gmail.com

The children with developmental coordination disorder require comprehensive and well-structured exercise program to improve their motor coordination problem. This study aims to evaluate the feasibility and outcomes of neuromotor task training among children with developmental coordination disorder in school setting. This is a pre- and post-test study design involving primary schools students from special education stream. The students were recruited from 7 different primary schools in Kuala Lumpur and Kajang district. The schools are chosen based on convenient sampling method. The identified students with probable DCD received total 8 weeks neuromotor task training in the school setting, conducted by the physiotherapists. NTT consists of manual dexterity exercise, catching and throwing ball skill; and balance training. The assessment of subjects have been done by an independent assessor, in which the pre-test assessment took place approximately one week prior to the training and the post-test assessment done at 9th week. 63 identified students from seven primary schools had been screened using Movement ABC-2 Checklist Form. Identified children who fulfilled the inclusion criteria were assessed using Movement ABC-2. Total 41 students had scored below than 15th percentile. There were 14 students who had consented and seven had completed 8 weeks NTT intervention. To date, intervention for children with DCD in school setting is do-able based on available result of seven children. However, more data is required to further evaluate the feasibility and outcome.

ID125 - Mathematical Models to Estimate Limb Load Asymmetries in Total Hip Replacement

SENTHIL N. S. KUMAR¹ & BAHARUDDIN OMAR²

¹Physiotherapy Program, School of Rehabilitation Science, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
²Biomedical Science Program, School of Diagnostic and Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: nsshakthi@gmail.com

Mathematical indexes and ratios are used to estimate the magnitude and direction of limb load asymmetries. However, the application of these models in joint replacement surgical individual is not known. To investigate the efficacy of mathematical models in total hip replacement (THR) conditions. This cross-sectional study recruited four THR individuals through convenience sampling. Two digital weighing scales were used to acquire the limb loading patterns. The raw data is further analyzed comparing different mathematical models symmetry index (SI), modified SI (MSI), symmetry ratio (SR) and symmetry angle (SA). The reference value shows a wide variation in the mean 29.03± 16.28; however, it was not reflected in the SI, SR and SA models. The maximum range of SI revealed as a blown-up value of 105.05 in THR data, which is more than 100%. In
contrary, the SR model shows a small mean 2.48±0.65, hence not reproducing the exact LLA. Besides, SR did not provide the side of the asymmetrical lower extremity. In SA model, the sign of the mean (-24.78±5.57) is in contrary to other models, displaying inaccuracy to quantify LLA. In MSI model the mean 40.97±10.7, is in analogous to the reference value. Furthermore, the MSI values are within hundred percent, therefore, no inflation with clinically meaningful asymmetry value. The MSI model is easy to deduce, stable, sensitive to estimate high and low lower limb asymmetries. MSI model is evidenced as a noteworthy model to estimate LLA in joint replacement surgical population such as THR.

ID139 - Outcome of Carer-Assisted Care Module for Stroke Survivors with Severe Disability in the Community: Findings from a Pilot Study

ILI DIYANA, N. A.1, NOR AZLIN, M. N.1, MAHFUZAH, A. M.1, JASMINE, K.1, DZALANI, H.1, SHAZLI EZAT, G.1, ZAHARA, A. M.1, NORHATY, H.2

1Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, 50300 Kuala Lumpur
2Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Bandar Tun Razak, Cheras, Kuala Lumpur

Author’s e-mail: ilidiyana12@yahoo.com

Involving family or informal carers in the care provision is seen as a practical approach to ensure the continuity of care for stroke survivors in the community. The aim of this study was to evaluate the outcome of carer-assisted care module for stroke survivors with severe disability living at home. Sixteen stroke survivors with severe disability (mean age ± SD = 77.0 ± 11.3 years, 90% with modified rankin scale 5) and 16 primary carers (mean age ± SD = 50.0 ± 7.1 years, stroke care experience ≥6 months) participated in this one-group pilot experimental study. Carers were trained to use a pre-developed stroke care module by two therapists prior to implementing the daily care for 8 weeks. Outcome of the care was assessed in term of change in disability level (using Modified Barthel Index, MBI), muscle tone (using Composite Spasticity Index, CSI), and quality of life (using Euro-Qol Visual analog scale, EQ-VAS) among the stroke survivors; while Modified Caregiver Strain Index (MCSI) were used to measure change in stress level among the carers. All assessments were conducted by a blinded assessor at week 9. Data analysis was performed with the use of SPSS version 23; paired t-test or Wilcoxon-sign ranked test used respectively for normally and non-normally distributed variables. The mean score of stroke survivors’ EQ-VAS improved by 12% (t= 2.86; p= 0.01). No significant changes were found for CSI and MBI scores of the stroke survivors following the care. MCSI reduced by 14.38%, however the reduction was not statistically significant (t= -1.32; p= 0.21). All but 2 carers perceived the care module as useful. Carer-assisted care module is useful in improving quality of life of stroke survivors and somewhat helps in reducing stress level among carers. The module, however does not significantly lower stroke survivors’ disability level. Larger study is required to establish the pilot study findings.
DIAGNOSTIC IMAGING AND RADIOTHERAPY (DIR)
ID12 - Interfraction Setup Accuracy with Different Immobilization Devices in VMAT for Oral Cancer Patients

NORFADILAH MAT NOR¹, ROZILAWATI AHMAD¹, LOW SENG HOOI², LAM KAI SENG² & AHMAD RADZI AHMAD BADRUDDIN²

¹Diagnostic Imaging & Radiotherapy Program, School of Diagnostic & Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
²Cancer Centre, Pantai Hospital, Kuala Lumpur

Author’s e-mail: norfadilahmn@gmail.com

Excellent setup accuracy will improve oral mucosal sparing by limiting uninvolved mucosal structures from received high dose radiation volume during highly conformal radiation technique, VMAT. Therefore, a study was conducted to improve the interfraction setup accuracy and reduce planning target volume movement using oral immobilization device. Estimation number of subject are 12 oral cancer patients were treated at the Pantai Hospital Kuala Lumpur Cancer Centre. Up to date, 10 patients had completed the treatment; 4 patients with HeadFIX mouthpiece molded with wax (HFW), 4 with 10 cc/ml syringe and 2 with tongue depressor molded by wax (TDW). Each patient underwent image-guided radiotherapy with a total of 251 CBCT data sets for position setup errors measurement. The variations in translational (lateral, longitudinal, vertical) and rotational (pitch, yaw, roll) in each CBCT image were calculated. Patient positioning errors were analyzed for time trends over the course of radiotherapy. PTV margins were calculated from the systematic (Σ) and random (σ) errors. The interfraction translational vector error were 1.93±0.66, 3.85±1.32 and 2.57±1.36 mm for the HFW, syringe and TDW respectively. Meanwhile, interfraction average rotational error were 0.002±0.867°, 0.278±0.531° and -0.351±0.559° respectively. The calculated PTV margins were 3.01, 2.96 and 1.04 mm, 3.43, 6.79 and 6.97 mm and 2.61, 1.98 and 4.46 mm in L-R, S-I and A-P axes respectively. HFW showed smaller transitional vector and average rotational error indicates higher reproducibility of the immobilization device. All margin calculated did not exceed hospital protocol (5mm) except S-I and A-P axes using syringe. However, in some special situations, such as re-irradiation or the close proximity of organs at risk and high-dose regions could benefit from daily IGRT and lower (i.e., 3 mm) margins.

ID26 - Performance Level of Diploma Diagnostic Radiographers Graduated from Different Institutes: Competency and Attitude

MARY OOMMEN KOCHUMMEN¹, KANAGA KUMARI CHELLIAH¹ & PONNUSAMI SUBRAMANIAM²

¹Diagnostic Imaging & Radiotherapy Program, School of Diagnostic & Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
²Health Psychology Program, School of Healthcare Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur.

Author’s e-mail: marysabi23@gmail.com

Radiology managers’ discontent on the clinical performance standard of the diploma diagnostic radiographers based on their graduation from different education institute in the country had been a national concern. The objective of this study was to understand from the managers’ assessment and perspective, the lacking in clinical performance among those radiographers in terms of competency and attitude. The rationale of the study was to use the findings to develop corrective and continuous improvement measures module to overcome those concerns. This was a cross-sectional descriptive study in which 200 radiographers were evaluated by their supervisors in ten government hospitals and two university medical centres in Selangor state using self-administered questionnaire MA-RPS(2). Twelve self-administered open ended questionnaires MA-RPS(1) were also distributed to the managers of each hospital and medical centre. One hundred and eighty five evaluations were returned which comprised of 94 evaluations from the government hospitals and 91 evaluations from university medical centres. Eleven managers responded to the open ended questionnaires. Supervisors’ evaluation score on the radiographers showed lacking in issues of understanding the importance of research in diagnostic radiography (mean=1.86); alerting medically significant findings to the medical personnel
responsible for the patient’s treatment (mean=1.16); and greeting patients in a friendly manner before conducting examination (mean= 2.03). The descriptive statistical analysis provided sufficient evidence, to conclude that the level of diagnostic radiographers’ competency between different diploma institutes were the same (p>0.05) but the level of attitude were not the same (p<0.05). The managers’ perspective feedbacks have addressed few shortfalls and measures to overcome them. However, these issues need to be further derived using focus group discussion and obtain content validity through Delphi survey.

ID34 - Comparing Effectiveness of Two Bladder Filling Protocol in Conformal Radiotherapy for Rectal Cancer

SANTHEKUMARI SITHAMPARAM, ROZILAWATI AHMAD, NOR FATIN ZALIKHA & AKMAL SABARUDDIN

1Diagnostic Imaging & Radiotherapy Program, School of Diagnostic & Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: santhekumari@gmail.com

Background: Conformal radiotherapy for rectal cancer requires patient to be treated with comfortably full bladder to minimize the volume of small bowel in the irradiated area. Therefore, the implementation of an appropriate bladder filling protocol is required. This study is carried out in two phases. Phase 1 (n=22) was to evaluate the effectiveness of existing departmental bladder filling protocol and in Phase 2 (n=22), a new bladder filling protocol is introduced. The aim of this study is to compare the variation of bladder volume, inter patient bladder volume variation and incidence and severity of diarrhea between the two protocol. Methods: The bladder volume is measured from cone beam computed tomography (CBCT) images taken during treatment and compared with planning bladder volume. The incidence and severity of diarrhea is recorded using standardized forms based on National Cancer Institute’s Common Terminology Criteria for Adverse Events for diarrhea during weekly review. The new bladder filling protocol requires patients to drink larger volume of water, patients are given written bladder filling instructions and bladder ultrasound scan prior to treatment. Result: Result of phase one study shows a negative time trend for bladder volume throughout 5 weeks treatment. There was no significant change in the mean bladder volume which decreased 18% from 123ml (SD 54ml) during planning to 101ml (SD 71 ml) on the 5th week of radiotherapy (P = 0.104). However there was a large variation of bladder volume within each patient. This study also shows an association between changes of bladder volume and diarrhea (P = 0.05). The phase two of this study is still ongoing.. Conclusion: Bladder volume reduced throughout radiotherapy treatment for conformal radiotherapy in rectal cancer and there was a large variation of bladder volume within patients. The change in bladder volume is associated with diarrhea. We expect less variation in bladder volume changes within patients and reduce incidence and severity of diarrhea in the second phase of this study.

ID48 - Pediatric Radiation Dose Measurements in CT Examinations at Diagnostic Imaging Department (Pediatric) Hospital Kuala Lumpur

BISTAMAN HALID1, AKMAL SABARUDIN1, MUHAMMAD KHALIS ABDUL KARIM2, ZALEHA ABDUL MANAF3 & MAZLYFARINA MOHAMED1

1Diagnostic Imaging & Radiotherapy Program, School of Diagnostic & Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
2Department of Physics, Universiti Teknologi Malaysia, Skudai, Johor
3Diagnostic Imaging Department (Pediatric), Hospital Kuala Lumpur

Author’s e-mail: harishalid@gmail.com

The concerns toward potential risk from CT dose exposure to the paediatric patients is increasing and this addressed an awareness among radiology personnel to monitor paediatric doses. Therefore, the purpose of this study is to determine paediatric effective Dose (ED) underwent routine CT examinations and to assess the relationship between genders to the ED obtained. A 320mm multi detector CT scanner (MSCT) Toshiba
Aquillion One (Toshiba America Medical System) was used in this study in General Hospital Kuala Lumpur. 194 cases were collected from four (4) routine CT examination protocols including the region of head, thorax, abdomen-pelvis (AP) and thorax-abdomen-pelvis (TAP). Patient effective dose (ED) was measured retrospectively by multiplying the Dose Length Product (DLP) with specific \( k \) coefficient factor obtained from ICRP Publication 103 report. From the study, it is revealed that the highest effective dose was found in TAP with \( 5.17 \pm 5.33 \) mSv followed by CT exam on brain, AP and thorax with \( 4.18 \pm 1.88 \) mSv, \( 3.28 \pm 1.85 \) and \( 1.27 \pm 0.80 \) mSv respectively. It also revealed that TAP CT examination yield the highest dose on both sexes and male gives the highest with \( 230.45 \pm 169.89 \) mSv. Representative measurements of the effective dose estimation from various CT examinations should be periodically undertaken as to optimize the radiation principle of As Low as Reasonably Achievable (ALARA) and results from this study may educate practitioners and imaging radiographers on radiation safety in terms of practicing low radiation dose technique in CT examinations.

ID51 - Evaluation of Patent Ductus Arteriosus in Pulmonary Duct Dependent Lesion using Three Dimensional Angiography Echocardiography

AHMAD ABDUL MUHAIMIN\(^1\), MOHAMAD MAZLYFARINA\(^1\) & ABDUL LATIFF HAIFA\(^2\)

\(^1\)Diagnostic Imaging & Radiotherapy Program, School of Diagnostic & Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

\(^2\)Pediatric and Heart Congenital Center, National Heart Institute of Malaysia (IJN), Kuala Lumpur

Author’s e-mail: muhaimin@ijn.com.my

Computed Tomogram angiography has been used to delineate PDA morphology in pulmonary duct dependent lesions (PDDL) to assess its suitability for PDA stenting. Three dimensional echocardiography has potential ability to delineate the whole PDA structure without radiation exposure. To assess accuracy of 3D echocardiogram in the assessment of PDA size and morphology in comparison to computer tomography (CT) angiography. This prospective study involving randomly selected 26 patients with PDDL undergoing either PDA stenting or BTS over 1 year period. Their mean age is patient age is \( 1.6 \pm 0.261 \) month. The live3D, full-volume color gated study was performed and analyzed offline using Qlab software. The PDA diameter (at the origin and insertion site) are measured and its morphology (type and tortuosity) are determined. These findings are compared to the computer tomography report which is taken as the gold standard and their agreement are sought using Paired T test and Kappa analysis. The mean diameter of PDA at the origin was \( 0.5196 \pm 0.11442 \) and \( 0.5169 \pm 0.14005 \) SD on 3DE and CT respectively (p value = \( 0.931 \)). The diameter of PDA at the insertion site was \( 0.2912 \pm 0.0817 \) and \( 0.2777 \pm 0.9784 \) on 3DE and CT respectively (p value = \( 0.457 \)). On 3DE assessment, 14 patients had vertical morphology, 7 had tortuous PDA morphology and 3 had tubular morphology. The feasibility of 3D color gated echocardiography in determining anatomical types was 96% in comparison with CT angiography finding. 3 D color gated echocardiography is comparable to CTA in delineating the PDA morphology offers an alternative mode of assessment of PDA without exposure to radiation. Nevertheless the use of 3D color gated echocardiography in infants with rapid heart rates is still one of challenging to gated color flow 3D acquisitions.

NORHAYATI MOHD ZAIN1,2, VENGKATHA PRIYA SERIRAMULU2, KANAGA KUMARI CHELLIAH1, SHANTINI ARASARATNAM3, POH BEE KOON4

1Diagnostic Imaging & Radiotherapy Program, School of Diagnostic & Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur
2Department of Medical Imaging, Faculty of Health sciences, KPJ Healthcare University College, Nilai, Negeri Sembilan
3Department of Radiology, General Hospital of Kuala Lumpur, Kuala Lumpur
4Nutritional Sciences Program, School of Healthcare Sciences, Faculty of Health sciences, University Kebangsaan Malaysia, Kuala Lumpur, Malaysia

Author’s e-mail: norhayatimohdzain@gmail.com

Mammographic breast density (MBD) is an established risk factor for breast cancer whilst bone mineral density is a marker of endogenous and exogenous estrogen exposure. The aim of the study was to determine the association of daily food intake on bone mineral density (BMD) and other breast cancer risk factors. Methodology A cross-sectional study was done using purposive sampling on 38 and 66 pre- and postmenopausal women above 40 years old was done using mammography and Dual Energy X-ray Absorptiometry in Hospital Kuala Lumpur for a duration of one year. Respondents who had mastectomy and were on drugs which had an effect on bone mineral density were excluded from the study. The mean of selected characteristics were compared between groups using independent t and chi-square for continuous and categorical data respectively whilst binary logistic regression test was used to determine the association of bone mineral density with nutrient intake and other risk factors. The mean age was 47.08 and 55.23 for premenopausal and postmenopausal women respectively. Premenopausal women had a higher MBD, BMD of spine and body mass index (BMI), whereas postmenopausal women had higher BMD of hip. There is no significant difference in MBD of pre- and postmenopausal women with p=0.125. However there is significant difference in the intake of fat and vitamin K in daily diet of the two groups with p=0.035 and p=0.04 respectively. Phosphate showed the highest intake among both premenopausal and postmenopausal with mean range of 1408mg to 2202mg of daily intake. Body mass index (BMI) showed significant difference to BMD (p=0.042) whilst other risk factors did not show any association with BMD of hip and spine. There is a positive association between daily intake of vitamin K, fat and BMI with BMD of premenopausal and postmenopausal women but other breast cancer risk factors showed a negative association.

ID141 - Comparison of Image Quality and Radiation Dose between Supine and Prone Position in Categorized BMI Patient

ABDUL AZIZ ISMAIL, MAZLYFARINA MOHAMAD & ROZILAWATI AHMAD

Diagnostic Imaging & Radiotherapy Program, School of Diagnostic & Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

Author’s e-mail: aziz.aziz.ismail@gmail.com

It is demanding in the current world obesity epidemic to act wherever possible to address problems underlying it. In the field of radiology to investigate systematically the effect of obesity on various imaging modalities specifically on the image quality and the radiation dose. To compare the image quality and the entrance surface dose (ESD) between anteroposterior (AP) supine with posteroanterior (PA) prone projection of computed radiography (CR) abdomen radiographic examination. To determine the effect of body mass index (BMI) and waist circumference (WC) on the image quality and ESD. AP supine and PA prone projection on the same subject for CR abdomen examinations of intravenous urography (IVU) were acquired on 38 patients. All the radiographic examinations were carried out on the Siemens Multitop general x-ray unit and the images were processed with CR Carestream Direct view Max. Samples were categorized by quota sampling into normal BMI 22 kg/m² and lower, n = 8, overweight 22-30 kg/m², n = 18, and obese 30 kg/m² and above, n = 5. Image quality was measured physically in signal to noise ratio (SNR) and subjectively, visual grading analysis (VGA)
evaluated by 2 blinded radiographers experienced 20 years and above based on the image of the European Commission (CEC) with 5 points scale. While the ESD in miligray (mGy) was measured using optical scintillation luminescence dosimeters (OSLD) calibrated by the Malaysian Nuclear Agency. For image quality there is no differences between PA prone and AP supine projection for normal BMI (mean SNR=60.25, mean VGA score=4.405 for AP, mean SNR=59.96, mean VGA score=4.40 for PA) and overweight (mean SNR=60.16, mean VGA score=4.415 for AP, mean SNR=60.3, mean VGA score=4.40 for PA) and for obese group there is a significant difference (p < 0.05) (mean SNR=59.4, mean VGA score=4.37 for AP, mean SNR=60.3, mean VGA score=4.60 for PA). Meanwhile comparing 3 BMI categories there is also a significance differences (p < 0.05). For radiation dose there is a significant difference (p < 0.05) between AP supine (mean ESD = 6.40 mGy) and PA prone (mean ESD = 4.14 mGy) projection at all BMI and WC. Image quality of CR abdomen between supine position and prone influenced by the BMI and WC. PA abdomen prone projection significantly reduce the radiation dose and improve the image quality of obese patient.