

Abstracts of Theses Approved for the MMed at the School of Medical Sciences, Universiti Sains Malaysia, Health Campus, Kubang Kerian, Kelantan, Malaysia

PAIN SYMPTOMS IN DEPRESSED OUTPATIENTS

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MMed (Psychiatry)

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Introduction: Major depressive disorder is an important health problem and a major cause of disability worldwide. There is a strong association between depression and pain, which is influenced by various biological and psychosocial mechanisms. The combination of chronic pain and depression is associated with high rate of disability, socio-economic disadvantage, greater utilization of health care resources, as well as a considerable mortality rate.

Objectives: The study was conducted with the objectives of determining the proportion of adult depressed patients who attended the psychiatric clinic with pain symptoms and assessed the characteristics and personality traits of the patients. In addition, the study aimed to determine the association between specific personality traits, depression, and pain symptoms in the respondents.

Patients and Methods: A survey was carried out on patients aged 18 years and above with a diagnosis of major depressive disorder according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), who attended the psychiatric clinic in Hospital Universiti Sains Malaysia. Convenience sampling was carried out between February 2008 and June 2009. A questionnaire containing the socio-demographic data form, Hamilton Rating Scale for Depression (HAM-D), the Malay-translation of the Brief Pain Inventory (BPI), and Malay-translation of the Crown Crisp Experiential Index (CCEI) was filled after each patient had given to inform consent to participate in the study. Patients who did not consent, those with a co-morbid psychiatric diagnosis, and those with medical or surgical conditions associated with pain symptoms were excluded from the study.

Results: The study consisted of 51 respondents with mild depression; about half had neurotic traits. Although 80.4% of respondents experienced pain, the overall severity of the pain was mild. When compared with the presence of pain, there was no difference in the socio-demographic characteristic of respondents. However, Fisher's exact test revealed the statistically differences in the status of depression (depressed versus remitted) and anxious depression characteristic, whereby those who were still depressed and those with anxious depression were more likely to experience pain ($P < 0.05$ in both cases). Logistic regression analysis of socio-demographic

and clinical variables did not show any significant finding with regard to their pain status (presence or absence). There were positive correlations observed between the pain severity and the free-floating anxiety, FFA ($r = 0.363$, $P = 0.009$), somatic concomitants of anxiety, SOM ($r = 0.394$, $P = 0.004$), depression subscale of CCEI ($r = 0.478$, $P < 0.001$), as well as the CCEI total score ($r = 0.415$, $P = 0.002$). The CCEI total score accounted for 17.2% of the variance of BPI total score. Positive correlations were also observed between the pain severity and 12 items from the HAM-D pertained to depressed mood and various types of anxiety (including depressed mood, work and interests, psychic anxiety, somatic anxiety, general somatic, and genital symptoms), as well as HAM-D totalscore ($r = 0.608$, $P < 0.001$) which was accounted for 33.2% of the variance of BPI total score.

Conclusion: The proportion of adults with major depressive disorder having pain was 80.4%. The study showed that there are correlation between anxiety, personality traits, and the severity of depression with the severity of pain experienced by depressed patients.

Supervisor :
Professor Dr Haji Mohd Razali Bin Salleh

THE ROLE OF SOCIO-CULTURAL AND DIETARY FACTORS IN EXPLAINING LOW PREVALENCE OF HELICOBACTER PYLORI AMONG KELANTANESE MALAYS

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Introduction: The prevalence of *Helicobacter pylori* is low in North-Eastern Peninsular Malaysia. A sero-epidemiological survey showed a prevalence of only 4.2% among 496 blood donors and 4.8% among 921 subjects who attended health-screening clinic in Hospital Universiti Sains Malaysia. The infection rate among the Malays is lower than among the non-Malays. Few studies have shown that socio-cultural and dietary factors play an important role in explaining the unexpectedly low prevalence of *H. pylori*. However, no study has been conducted locally to investigate the association between socio-cultural, dietary factors, and *H. pylori* infection in the Malay population.

Objectives: The study aimed at comparing the socio-demographic, socio-cultural, and dietary differences between

H. pylori infected and non-infected individuals, as well as identifying the differences in clinical presentation of both groups.

Patients and Methods: A total of 161 subjects were recruited in this case control study. The index cases were identified from the patients who underwent oesophago-gastric-duodenoscopy (OGDS) at Hospital Universiti Sains Malaysia and tested positive for *H. pylori* through histology. The control group comprised patients who underwent OGDS but were negative for *H. pylori*. Stratified random sampling was applied and consented respondents were interviewed using a validated questionnaire. The questionnaire consisted of data on demography, socio-cultural practices, diet, and clinical presentation of disease..

Results: *H. pylori* infection was associated with 8 variables in multiple regression analysis: body mass index, BMI ($P = 0.018$, adjusted odds ratio of 1.17, 95% CI 1.08–1.34), type of toilet used at home ($P = 0.01$, adjusted odds ratio of 4.63, 95% CI 1.89–11.27), symptom of regurgitation ($P = 0.001$, adjusted odds ratio of 0.19, 95% CI 0.07–0.52), frequent use of traditional complementary medicine, TCM ($P = 0.009$, adjusted odds ratio of 0.29, 95% CI 0.11–0.74), frequent intake of “pegaga” or pennywort ($P = 0.024$, adjusted odds ratio of 0.32, 95% CI 0.12–0.86), frequent intake of “budu”, a type of fermented seafood product ($P = 0.010$, adjusted odds ratio of 0.26, 95% CI 0.09–0.73), frequent consumption of tea ($P < 0.001$, adjusted odds ratio of 0.03, 95% CI 0.11–1.00), and frequent consumption of coffee ($P = 0.021$, adjusted odds ratio of 3.45, 95% CI 1.20–9.86).

Conclusion: This study has shown that patients with higher BMI and use pit latrine at home had higher risk of *H. pylori* infection. Patients who had regurgitation were less likely to be infected with *H. pylori*. The intake of “pegaga”, “budu”, and tea also lowered the risk of infection, whereas frequent coffee intake increased the risk. There was no significant association observed between socio-cultural practices and *H. pylori* infection.

Supervisor :
Dr Lee Yong Yeh
Co-supervisor:
Dr Nazri Bin Mustaffa

AN EXPERIMENTAL STUDY ON THE USE OF FIBRIN GLUE IN CORNEAL WOUND REPAIR IN RABBITS

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Objectives: This study was conducted to evaluate the clinical outcomes and histopathological changes after the use

of fibrin glue in repairing different types of corneal wound in rabbits.

Patients and Methods: 10 rabbits were divided into 2 groups, A and B, with each group consisting of five rabbits. Full thickness central corneal wound of 6 mm in length was created in a group A, and peripheral wound of 6 mm was created in a group B. The wounds then were closed using the fibrin glue. Serial clinical examination was conducted using portable slit-lamp at day 1, 3, 7, 14, 21 post-procedure to evaluate wound apposition, corneal clarity, and anterior chamber depth. Enucleation was done on day 21 of study. Histopathology evaluation was performed to assess stromal inflammation, avascularization, granuloma formation, and microscopic wound gapping.

Results: Good wound apposition was achieved in 80% of a group A by day 1 and 100% by a day 3 post-procedure. No wound leakage was reported in group B throughout the study. Clear cornea with a deep anterior chamber was obtained from all rabbits at the end of study. Histopathology examination revealed scanty stromal avascularization in a group B. Majority of the rabbits had a mild inflammatory reaction; however, no granuloma formation or microscopic wound gapping was observed in the two groups of study.

Conclusion: Fibrin glue has shown satisfactory clinical outcomes with a good wound apposition, clear cornea, and deep anterior chamber. These clinical findings correspond with the histopathological results, which revealed acceptable inflammatory reaction without any granuloma formation or microscopic gapping.

Supervisor:
Dr Raja Azmi Mohd Noor
Co-supervisors:
Associate Professor Dr Hasnan Jaafar
Associate Professor Dr Wan Hazabbah Wan Hitam

PPREVALENCE OF IRRITABLE BOWEL SYNDROME (IBS) AMONG HEALTHY SUBJECTS USING VALIDATED BAHASA MALAYSIA VERSION OF ROME III IBS QUESTIONNAIRE

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Introduction: Irritable bowel syndrome (IBS) is a very common chronic gastrointestinal disorder characterized by recurrent abdominal pain and altered bowel habit without major organic disease. ROME diagnostic criteria, which are based on subjective gastrointestinal (GI) complaints, are the most widely used criteria for diagnosing IBS. We have developed the Malay-translation of ROME III IBS

questionnaire for the study of IBS in Malaysia. This validated questionnaire was used to study the prevalence of IBS among healthy subjects.

Objectives: The aims of this study were to validate the Malay-translation of ROME III IBS and ROME III psychosocial alarm questionnaires, and investigate the prevalence of IBS among normal healthy subjects in Universiti Sains Malaysia (USM) Health Campus, Kelantan, using the validated Malay-translation of ROME III IBS and ROME III psychosocial questionnaires.

Patients and Methods: This study was divided into 2 phases: 1) the validation process of the proposed translated questionnaire, and 2) a cross-sectional prospective study to examine the prevalence of IBS among healthy subjects in a university campus.

Results: The validated Malay-translation of ROME III IBS questionnaire was shown to have good colonometric properties. The prevalence of IBS among healthy subjects in USM Health Campus was 11.8%. Prevalence of IBS was significantly associated with age, ethnicity, and level of formal education. Red flag and psychosocial alarm symptoms were higher in subjects with IBS compared to non-IBS subjects.

Conclusion: This validated Malay-translation of ROME III IBS questionnaire have a good colonometric properties suitable as a tool for research. Prevalence and characteristics of IBS among healthy subjects in USM Health Campus were almost similar to those reported in another Asian population.

Supervisor:

Dr Lee Yeong Yeh

Co-supervisors:

Dr Amry Abdul Rahim

Dr Sarimah Abdullah

A COMPARATIVE STUDY BETWEEN A TARGET CONTROLLED INFUSION (TCI) AND MANUAL CONTROLLED INFUSION (MCI) OF PROPOFOL FOR SEDATION DURING CEREBRAL PROTECTION IN SEVERE TRAUMATIC BRAIN INJURED PATIENTS

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Introduction: Propofol is the most common sedative agent administered to traumatic brain injured (TBI) patient using manually controlled infusion (MCI) technique. The development of target controlled infusion (TCI) technique has given rise to a new alternative method in propofol administration, and this technique has never been tested in TBI patients.

Objective: The aim of this study was to compare the effectiveness of different methods of propofol infusion (TCI versus MCI) for sedation during cerebral protection in TBI patient in Neurosurgical Intensive Care Unit (NICU).

Patients and Methods: In this prospective, double-blinded, randomized controlled trial, 50 patients (age 16-50 years old) who had TBI with a Glasgow Coma Scale (GCS) between 3 and 8 with no severe medical illness and undergoing craniotomy were randomized into two groups (MCI and TCI) of 25 patients in each using block randomization. However, 1 patient in MCI group had to be excluded due to very agitated state to the extent of requiring muscle relaxant in spite of adequate sedation. During surgery, both groups received anaesthesia according to the standard protocol, and observation began once patients were admitted to NICU for cerebral protection. Sedation level was monitored using Bispectral Index (BIS) monitor and Sedation Agitation Scale (SAS). BIS index of 60-70 and SAS score of 2-3 was considered as adequate sedation. The same infusion pumps that can operate either TCI or MCI was used during drug administration, which was done via a dedicated central venous line lumen. *Hemodynamic* parameters (blood pressure, mean arterial pressure, MAP, and heart rate) and neurological parameters (intracranial pressure, ICP, and cerebral perfusion pressure, CPP) were recorded. Time and volume of propofol used to achieve BIS 70, total volume of propofol used for 24 hours, and time taken to achieve BIS 90 after stopping infusion at the end of cerebral protection were measured. Fentanyl infusion at 1 mcg/kg was given for pain relief and was stopped four hours before the end of the 24-hour study.

Results: There were some significant differences between 2 modes of infusion. TCI mode achieved BIS 60-70 significantly faster than MCI, with mean of 6.32 minutes (SD 2.88) and 19.71 minutes (SD 7.00), respectively. Time taken to recover from sedation to achieving BIS 90 was also significantly faster in TCI, 22.44 minutes (SD 11.50), compared with MCI, 57.29 minutes (SD 19.89). In view of ICP, there was a differentiation between 2 modes; however, no significant difference was observed in MAP and CPP.

Conclusion: TCI mode of propofol is shown to be more effective in sedating neurotrauma patients as it gave adequate sedation faster with lesser volume, as well as faster recovery. It also lowered the ICP to 20 mmHg lower than MCI.

Supervisor:

Professor Dr Nik Abdullah Nik Mohamad

Co-supervisor:

Dr Wan Mohd Nazaruddin Wan Hassan

THE EFFECTIVENESS OF PRETREATMENT WITH LOW DOSE ETOMIDATE OR PROPOFOL IN REDUCING ETOMIDATE-INDUCED MYOCLONUS IN PAEDIATRIC PATIENTS

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Introduction: A good choice of intravenous anaesthetic agent is very important, especially in an extreme age group either pediatric or elderly patient. Etomidate is one of the anaesthetic agent of choice for general anaesthesia and as alternative to propofol and barbiturates for rapid intravenous induction of anaesthesia because of etomidate properties in maintaining hemodynamic stability. Nevertheless, there is a high incidence of myoclonic movement following induction of anaesthesia with etomidate. The myoclonic movement will affect patients' intraoperative monitoring such as blood pressure monitoring, pulse oxymetry reading, and electrocardiogram monitoring.

Objectives: The goal of this study was to compare the effectiveness of pre-treatment with low-dose etomidate or low-dose propofol in reducing etomidate induced myoclonus in pediatric age group. In addition, the study was conducted to observe any significant changes in hemodynamic parameters and incidence of pain following intravenous etomidate injection.

Patients and Methods: Pediatric patients of ASA physical status I or II ($n = 88$) were randomized to two groups. The patients received pre-treatment of either intravenous etomidate (0.03 mg/kg) or intravenous propofol (0.2 mg/kg), followed by induction dose of intravenous etomidate (0.3 mg/kg). Presence of myoclonus and/or pain following etomidate induction was observed and charted in observational data collection.

Results: Pre-treatment with etomidate caused fewer myoclonus compared with propofol (occurring in 31 or 45.6% of patients and 37 or 54.4% of patients, respectively); however, this observation was not statistically significant ($P = 0.132$). Among the patients who had experience myoclonus, it was found that the condition was significantly correlated with age ($P = 0.002$) and body weight ($P = 0.001$). Mean age group for the patients experiencing myoclonus was 10.7 years old (SD 3.21), whereas the mean body weight was 33.4 kg (SD 12.48). Pre-treatment with etomidate caused less pain during subsequent etomidate injection compared with propofol (occurring in 10 or 22.7% of patients and 13 or 29.5% of patients, respectively); however, results were not relevant. There were also no significant changes in the baseline, pre-treatment, and post-induction blood pressure and heart rate in both groups.

Conclusion: Incidence and severity of myoclonus after etomidate injection were related to the patients' age and body weight. There was no significant difference in myoclonus and pain reduction between pre-treatment with low-dose etomidate and low-dose propofol in the pediatric patients, and no significant changes were observed in the hemodynamic parameters following etomidate induction.

*Supervisor:
Dr Mohd Nikman Ahmad*

EFFECTIVENESS OF PAP SMEAR SCREENING PROGRAMME IN DETECTING CERVICAL SQUAMOUS CELL CARCINOMA AND HIGH GRADE SQUAMOUS INTRAEPITHELIAL LESIONS IN KELANTAN: 2002-2006

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MPath (Anatomic Pathology)**

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Introduction: Cervical cancer is a preventable cause of death in women. Cervical cytology had been proven to be effective as a screening test. This is demonstrated by decreased incidence and mortality rates in many countries worldwide. The specificity of the Papanicolaou smear frequently has been reported to be higher than 90%. However, the sensitivity as well as false negative and false positive rates have been inconsistent and dependent on the study design.

Objective: This study was conducted to determine the effectiveness of cervical cytology screening in detecting high grade squamous intraepithelial lesion and squamous cell carcinoma using histopathology as the gold standard.

Patients and Methods: This is a retrospective study of all patients diagnosed with carcinoma intraepithelial neoplasia (CIN 2 and CIN 3) and squamous cell carcinoma by histopathology in Hospital Universiti Sains Malaysia and Hospital Raja Perempuan Zainab II from 2002 to 2006. The cervical cytology results were reviewed and divided into 3 categories: concordant, minor, and major discordant. The concordance rate between cytological diagnoses and histopathological diagnoses were determined. The smears from the minor and major discordant categories were traced and subjected to re-screening. The 2001 Bethesda system was used to classify the revised diagnoses of re-screening.

Results: There were 182 cases of CIN 2, CIN 3, and invasive squamous cell carcinoma diagnosed by histopathological examination. We found that only 54.5% of the cases had a previous Pap smear. Of the patients who received Pap smears, 65.7% were histopathologically diagnosed as concordant, 15.1% as major discordant category, and 19.2% as minor discordant. The concordance rate between the histopathology and Pap smears was statistically significant ($P < 0.05$). 23 (23.2%) smears from the major and minor discordant categories were subjected to re-screening. The revised diagnoses of the re-screening were similar to the initial screening diagnoses in only 5 (21.7%) smears. In 18 (78.3%) smears, the revised diagnoses were changed. The false negative rate was 15.2% and the sensitivity of Pap smear was 84.8%. This study showed that Pap smear was found to be underutilized in 24.2% of cases, where it was used for diagnosis rather than for screening. It was also noted that there is a higher diagnostic error in the laboratory with the higher workload.

Conclusion: Pap smear is effective in detecting high grade squamous intraepithelial lesions and squamous cell carcinoma with a high sensitivity. The false negative rate is within an acceptable range.

Supervisor:

Dr Mukarramah Che Ayub

Co-supervisor:

Professor Dr Nor Hayati Othman

A LOCAL STUDY ON THE INCIDENCE AND RISK FACTORS OF POST-TRAUMATIC SEIZURES AMONG PATIENTS WITH TRAUMATIC BRAIN INJURY

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Introduction: Post-traumatic seizure is a well-known and serious complication of traumatic brain injury (TBI). The incidence and risk factors vary among study populations. Very little data has been published concerning post-traumatic seizures in the Malaysian population.

Objective: The aim of this study was to investigate the incidence and risk factors for the development of post-traumatic seizures among patients with TBI in Hospital Universiti Sains Malaysia, Kelantan, Malaysia.

Patients and Methods: A total of 157 patients who were diagnosed with TBI from June to December 2007 were included in this prospective observational study. Patients were divided into high-risk and low-risk groups and randomized to receive phenytoin for either 1 week or 1 year (for the high-risk group) and either phenytoin for 1 year or no phenytoin (for the low-risk group). The patients were then followed up for 12 months, until their death or first post-traumatic seizure. Survival analyses were conducted using Kaplan-Meier curves and Cox proportional hazard regression.

Results: Out of 157 patients, 26 patients (16.6%) developed post-traumatic seizures. From these 26 patients, 11 patients (42.3%) developed seizures early, within 7-day post-trauma of the trauma, whereas the remaining 15 patients (57.7%) developed seizures later, between 8-days and 12 months after trauma. The mean duration for development of late post-traumatic seizures was 9.4 months (SD 3.2). The risk factors for developing early and late post-traumatic seizures were different. For early post-traumatic seizures, the risk factors were young age ($P = 0.021$, 95% CI 0.806-0.982) and intubated patients ($P = 0.029$, 95% CI 1.194-25.913). For late post-traumatic seizures, the significant risk factor was a severe head injury with a Glasgow Coma Scale of 3-8 ($P = 0.036$, 95% CI 1.065-6.464). Log-rank tests for phenytoin treatment in both high-risk and low-risk groups were insignificant (log-rank statistic of 0.31 with $P = 0.5784$ for the high-risk group;

a log-rank statistics of 0.23 with $P = 0.6283$ for the low-risk group).

Conclusion: Incidence of post-seizures in the local population was 16.6%. Risk factors for early post-seizures were young age and intubated patients, whereas only severity of head injury was found to be significantly correlated with late postpost-seizures. Phenytoin was not beneficial as a prophylaxis against post-seizures.

Supervisor:

Associate Professor Hillol Kanti Pal

DETERMINATION OF THE OVER-PENETRATION LENGTH DURING DRILLING PROCEDURE WITH K-WIRE AND DRILL BIT AMONG ORTHOPAEDICS MASTER STUDENT IN UNIVERSITI SAINS MALAYSIA

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MMed (Orthopaedics)

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Introduction: Drilling procedure is the most fundamental surgical skill required by orthopaedic surgeons as many fractures, nowadays, are treated operatively. Neurovascular injuries are known to be one of the complications of over-penetration during drilling procedures.

Objective: The purpose of this study was to determine the length of over-penetration in drilling technique among orthopaedics master students in Universiti Sains Malaysia.

Patients and Methods: A total of 14 junior postgraduate students (Year 1 and 2) and 14 senior postgraduate students (Year 3 and 4) were recruited in this study. Each student performed drilling procedure on a bovine bone block using the battery-powered drill with 3.2 mm drill bit and 2.0 mm K-wire. Drilling was stopped immediately when penetration of the far cortex was felt. The distance from the tip of the instrument to the far cortex was measured. The procedure was repeated three times for each instrument. The mean values were calculated and compared using parametric paired t test. The length of over-penetration in Experience Level group and Exposure to an AO course group for each drilling instrument were compared using non-parametric Mann-Whitney U test.

Results: The mean length of over-penetration for the drill bit and K-wire were 21.50 mm (range 10.33-35.66 mm) and 10.18 mm (range 3.00-18.66 mm), respectively. Using the drill bit, the median lengths of over-penetration for junior students and senior students were 25.55 mm and 16.66 mm, respectively, while the use of K-wire resulted in shorter over-penetration, 16.50 mm and 5.50 mm for junior students

and senior students, respectively. For the group of students exposed to AO course, the median lengths of over-penetration were 13.33 mm with drill bit and 5.00 mm with K-wire, while for those students without AO course exposure, the lengths were 21.66 mm with drill bit and 10.66 mm with K-wire. The differences were statistically significant with regard to the type of instrument and experience level ($P < 0.001$ in all comparison) and exposure to AO course ($P = 0.02$ for drill bit and $P = 0.05$ for K-wire). There was a significant correlation between postgraduate training years in with personal experience in Orthopaedics ($r = 0.55$, $P = 0.003$).

Conclusion: The study provides the overall results regarding the depth of over-penetration in drilling procedure among orthopaedics master students in Universiti Sains Malaysia. It may benefit as the reference for related studies in the future.

Supervisor:

Dr Amran Ahmed Shokri

Co-supervisor:

Dr Ahmad Tajuddin Abdullah

A CROSS SECTIONAL STUDY OF THE PROXIMAL FEMUR MORPHOLOGY OF THE NORMAL MALAY POPULATION USING COMPUTED TOMOGRAPHY IMAGES (SCANOGRAM) AT HOSPITAL UNIVERSITI SAINS MALAYSIA

Dr Dzuraimy Bin Ismail
MMed (Orthopaedics)

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Introduction: Previous studies have shown significantly smaller proximal femur parameters in the Asian population in comparison with the Caucasian population. Currently used proximal femur implant size was based on Caucasian studies. However, due to the smaller size of the proximal femur in the Asian population, improvement in the design of implant is required to optimize component fixation and restore the normal biomechanics of the hip joint.

Objectives: This study was conducted to quantify the proximal femur dimensions in Malay patients, compare the parameters of the proximal femoral bones between male and female patients, and determine the correlation between these parameters.

Patients and Methods: This cross-sectional study involved 140 Malay patients (70 males and 70 females), aged between 18 and 80 years, who were treated in Hospital Universiti Sains Malaysia. Each patient was confirmed as having normal proximal femur morphology by analysing the computerized tomographic scan, which was conducted for various pelvic pathologies. The following parameters of the proximal femoral bones were studied: 1) femoral neck shaft

angle, 2) femoral head diameter, 3) femoral neck isthmus diameter, 4) vertical offset of femur, and 5) horizontal offset of the femur. The data obtained were statistically analysed using independent t test to determine the difference between male and female patients. The mean of all the parameters was compared with published Western and Asian studies using one sample t test. Significant level was set at $P < 0.05$.

Results: There were significant differences between male and female patients in the femoral head diameter, femoral neck isthmus diameter, vertical offset, and horizontal offset of the femur. However, there was no significant difference in the neck shaft angle. Female patients have significantly smaller dimensions in all parameters measured except for the neck shaft angle, which was larger than the male patients'. When observation in the current study was compared to radiographic study by Sugano et al. and Noble et al., significant differences were found in the head diameter, neck isthmus diameter, vertical offset of femur, and neck shaft angle. The head diameter, neck isthmus diameter, and vertical offset of the femur observed in this current study were significantly smaller compared with their reports; however, the neck shaft angle in this study was significantly larger.

Conclusion: The current study has shown that the proximal femur morphometry of the Malay population was smaller compared to the Caucasian and Thailand population.

Supervisor:

Dr Amran Bin Ahmed Shokri

A STUDY ON GLYCEMIC CONTROL AMONG INSULIN-TREATED TYPE 2 DIABETES PATIENTS ATTENDING DIABETES CENTRE, HOSPITAL UNIVERSITI SAINS MALAYSIA, KELANTAN

Dr Haryati Hamzah
MMed (Family Medicine)

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Introduction: The goal in management of type 2 diabetes mellitus is to achieve a good control of HbA_{1c}. Unfortunately, many diabetic patients were unable to this target. Combination of insulin and oral anti-diabetic (OAD) agent, or full dose insulin, is an alternative treatment to improve the glycaemic control. Recent studies indicate that insulin is able to improve HbA_{1c} level and reduce the risk of microvascular and macrovascular complications, thus reducing the economic burden of diabetes mellitus.

Objectives: The study was conducted to examine the percentage of insulin-treated diabetes patients with good glycaemic control and determine the factors that contribute to glycaemic control.

Patients and Methods: This cross-sectional study was conducted by collecting case report form (CRF) or proforma from 236 insulin-treated type 2 diabetes mellitus patients who attended the Klinik Diabetik and Klinik Rawatan Keluarga, Hospital Universiti Sains Malaysia (HUSM), from January until November 2008. The CRF was divided into 2 sections: Section 1 consisted of socio-demographic data while Section 2 consisted of background history of diabetes and clinical characteristics that was filled up by the researcher by reviewing the patients case notes.

Results: The result showed that the percentage of insulin-treated diabetes patients with good glycaemic control was 21.2%. The factors that contribute to good glycaemic control were female, high education level, combination of insulin and OAD regime, basal bolus insulin, and fasting blood sugar. Factors that were found to be protective of glycaemic control include financial status, high low-density lipoprotein (LDL), high total cholesterol, and normal weight (non-obese).

Conclusion: Glycaemic control among insulin-treated type 2 diabetes mellitus attending the Diabetes Centre, HUSM, was still unsatisfactory. Assessment of glycaemic control should be a routine during follow-up. By recognizing the factors that contribute to good glycaemic control, healthcare providers can plan an intervention program to improve glycaemic control and subsequently reduce the cost of treating the diabetes mellitus and its complications.

Supervisor:
Dr Adibah Hanim Ismail
Co-supervisor:
Dr Nor Azwany Yaacob

PREVALENCE OF FALLS AND ITS ASSOCIATED FACTORS AMONG ELDERLY DIABETES ATTENDING KLINIK PAKAR PERUBATAN AND KLINIK RAWATAN KELUARGA HOSPITAL UNIVERSITI SAINS MALAYSIA

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MMed (Family Medicine)

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Objectives: The study aimed to assess the prevalence of fall and its associated factors among elderly type 2 diabetes mellitus patients attending outpatient clinics (Klinik Pakar Perubatan & Klinik Rawatan Keluarga), Hospital Universiti Sains Malaysia (HUSM).

Patients and Methods: This cross-sectional study was conducted among 288 elderly type two diabetes mellitus in HUSM, from April 2007 until March 2008. The patients were selected using systematic random sampling method. Baseline data on socio-demographic, diabetes history, co-morbid

diseases, drug use, and activity of daily living (Barthel's index) were collected. The patients were examined physically, and gait assessment was carried out. Information on laboratory investigation results, medication, and concomitant illness were obtained from reviewing the patients medical records. Prevalence of fall was determined, where fall was defined having at least one history of fall in the past one year from the interview date.

Results: Prevalence of fall among elderly diabetes was 18.8%; 72.2% out of these patients had experienced more than one falls. Female gender (OR 2.54, $P < 0.05$), age of more than 75 (OR 2.97, $P < 0.05$), retinopathy (OR 2.19, $P < 0.05$), and orthostatic hypotension (OR 2.87, $P < 0.05$) were associated with higher risk for falls in elderly diabetes; in contrast, high balance and gait scores was associated with reduced risk of fall (OR 0.89, $P < 0.05$).

Conclusion: In this cross-sectional study among elderly diabetes type 2, the prevalence of falls was found to be lower compared with previous studies in the Western countries. The factors associated with higher risk for fall were gender (female), age of more than 75, retinopathy, and orthostatic hypotension. Those who had higher balance and gait scores were found to be less likely to experience fall compared with those with lower scores.

Supervisor:
Dr Azidah Abdul Kadir
Co-supervisor:
Dr Zunaina Embong

SOFT TISSUE CHARACTERISTICS OF REPAIRED CLEFT LIP AND PALATE OF MALAY CHILDREN IN KELANTAN

Dr Ibrahim Hassan Omar Alhaig
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Introduction: Facial growth and soft tissue are essential parameters in the assessment of a cleft surgery outcome. Many studies have been focusing on the effects of the cleft surgery on the facial development, mainly on the skeletal development. Only a few studies have investigated the influence of surgical intervention on the soft tissue morphology.

Objectives: This study aimed to examine the facial morphology of Malay cleft lip and palate (CLP) patients who had been treated surgically without any osteoplasty and received a complete lip repair at 3-6 months, and palate closure at 9-12 months.

Patients and Methods: A total of 26 CLP patients of Malay ethnicity with age range of 4-10 years old were recruited in this cross-sectional comparative study. Serial

analyses of the soft tissue morphology using 2-D photographs pre-operatively and 3-D computer generated images post-operatively were conducted, and the data were compared with non-CLP subjects of same ethnic origin, which acted as the control group. The observations were then compared with other studies on CLP patients.

Results: The results revealed statistically significant changes in intercanthal distance, mouth width, and nose width between pre-operative and post-operative measurements. Compared with the control group, CLP patients had wider intercanthal distance and nose width. However, CLP patients showed restriction of facial growth at the prolabial and anteroposterior dimension of the midface. Results of this study suggested that all recorded changes occurred in the horizontal plane, and that the dento-facial growth disturbance can extend up to the orbital region.

Conclusion: The facial profile changes in CLP patients following cleft surgeries were statistically significant when compared to the non-CLP subjects. Most of these changes that occurred in the orbital and nasal regions were due to intrinsic factors. The effect of cleft surgeries played a major role in the changes at the prolabial region. Highest degree of dento-facial differences between CLP patients and control subjects was in the horizontal dimensions of the nose. There were no significant differences in vertical dimensions between these groups. These soft tissue characteristics of repaired CLP would be useful in the development of a more ideal treatment protocol, which can enhance the quality of life in CLP patients.

Supervisor:
Dr Wan Azman Wan Sulaiman
Co-supervisor:
Professor Dr Ahmad Sukari Halim

CORRELATION OF SIGNIFICANT LEFT MAIN CORONARY ARTERY STENOSIS WITH 12-LEAD ECG

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MMed (Internal Medicine)

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Objectives: The purpose of this study is to determine the correlation of significant left main coronary artery stenosis with 12-lead ECG. We also determine the sensitivity and specificity of ECG in predicting left main coronary artery disease.

Patients and Methods: A total of 220 patients who had left main coronary involvement were included in this study. Their ECGs were reviewed blindly by the investigator under 11 different ECG criteria which previous studies have formulated. The patients were then subdivided into 2 groups depending on whether there was significant LMCA stenosis or not.

Results: After establishing the frequency of ST elevation in leads aVR < V1 (criteria 5) occurred in 79.5% cases. The ST elevation in aVR and V1 (criteria 7) occurred in 0.5% of cases. This showed that a combination of ECG criteria only occurred in very few cases. After using the McNemar test as a non-parametric test for the data, it was found that ECG criteria 5 had the highest sensitivity (75%) but with a low specificity (12.5%). Other ECG criteria having high specificity however did not have high sensitivity. Therefore, new ECG criteria or a new combination of criteria needed to be devised that have both high sensitivity and good specificity. After several attempts at defining new ECG criteria, we came across new criteria (aVR = V1) which had a sensitivity of 92.9% but still having low specificity of 13.3%. We suggest using ST depression, I, II, V4-V6 (criteria 10) which has high specificity of 97.3% to exclude cases of significant LMCA stenosis.

Conclusion: We can conclude that aVR = V1 (new criteria) can be used to identify patients with significant LMCA disease and ST depression, I, II, V4-V6 (criteria 10) to exclude significant LMCA disease.

Supervisor:
Dr Mohd Sapawi Mohamed
Co-supervisor:
Assoc. Associate Professor Dr Zurkurnai Yusof

ACCURACY AND RELIABILITY ANALYSIS OF LOWER LIMB LENGTH DISCREPANCY MEASUREMENT USING TAPE MEASURING METHOD AND CT SCANOGRAPHY

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MMed (Orthopaedic)

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Introduction: Clinical measurement using the tape measurement method (TMM) is easily performed and required no special instrument. However, it was reported to be less accurate compared with radiological measurement. Currently, there is no available data on the accuracy of TMM in the clinical measurement of the lower limb length.

Objectives: The study was design to assess the reliability and accuracy of TMM in comparison with computed tomography (CT) scan in measuring the length of lower limb.

Patients and Methods: This was a cross-sectional study involving 50 patients who had been treated in Hospital Universiti Sains Malaysia: 37 patients with limb-length discrepancy (LLD) and 13 patients without LLD. All of them had limb-length measurement done using TMM by 2 blinded observers. From 37 patients with LLD, only 25 of them had undergone CT scan, and their CT scanogram were used for radiological measurement done by 2 blinded radiologists. Intra class correlation coefficient (ICC) and mean difference were

calculated to assess interobserver reliability for TMM and CT scanogram measurement. Accuracy of the TMM was assessed by comparison with CT scanogram as the gold standard.

Results: The interobserver reliability for TMM was high, with Intraclass correlation coefficients (ICC) of 0.912 (0.851 to 0.949) and mean difference of -0.7 (-3.3 to 1.9) mm. The interobserver reliability for CT scanogram is also high, with ICC of 0.964 (0.921 to 0.984) and mean difference of -1.14 (-3.4 to 1.1) mm. When compared to CT scanogram, the accuracy of one measurement by TMM was fair, with ICC of 0.672 and mean difference of 3.1 (-3.6 to 9.8) mm. A mean of two measurements by TMM was good, with ICC of 0.781 and mean difference of -3.4 (-9.0 to 2.1) mm.

Conclusion: Both measurements of LLD using TMM and CT scan to have been high interobserver reliability. In comparison with CT scanogram, the accuracy of the TMM was improved from fair to good if the mean of two measurements by TMM was taken instead of a single measurement. The TMM can either over- or underestimate the LLD up to 10 mm.

Supervisor:

Associate Professor Dr Abdul Razak Sulaiman

Co-supervisor:

Associate Prof Dr Mohd Ezane Aziz

Dr Juhara Haron

OUTCOME OF IMMEDIATE PARTIAL WEIGHT BEARING FEMORAL SHAFT FRACTURES, TREATED BY SINGLE PROXIMAL LOCKED INTRAMEDULLARY NAILING, IN HOSPITAL IPOH

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Introduction: Femoral shaft fracture is a common fracture encountered in daily orthopaedic practice. Literature review showed that this type of fracture had been treated with different modalities since many years ago, and the treatment method has advanced rapidly over the past few decades. Single proximal locked femoral nail fixation has not been widely practiced. This method of fixation was only used for proximal third and mid-shaft fractures of the femur. Femur fractures with simple transverse configuration and up to 50% contact of the cortices were suitable for this method of fixation. Dynamic intramedullary femoral stabilization had been previously studied by Brumback et al. using interlocking screws at only one end of the nail, and the authors concluded that dynamic intramedullary femoral stabilization should be performed for transverse or short oblique fractures of the femoral isthmus with Winquist-Hansen type-I and type-II comminution.

Objectives: The objective of this study was to review

the results and clinical outcomes of immediate partial weight bearing in the treatment of femoral shaft fractures using single proximal locked intramedullary nailing for type-o, type-I, and type-II comminution according to Winquist-Hansen classification.

Patients and Methods: This is a case-review, retrospective study using secondary data. Study subjects were 31 patients who were admitted to the ward after sustaining a single femoral fracture, with no other associated injuries, from June 2005 until May 2007. Patients with femur fractures that were beyond the mid-shaft were not included in this study due to rotational instability with single proximal locking screw fixation. Patients in this study were categorised according to the types of fracture using the Winquist-Hansen classification: type-o, type I, and type II. All patients underwent single proximal locked intramedullary nail fixation. Patients were advised for partial weight bearing on the fractured limb using crutches starting on the second day post-operation in order to achieve primary dynamization to enhance fracture healing process. They were followed up every 6 weeks for a period of 18 weeks. Throughout the follow-up period, fracture union and clinical outcome were assessed by a senior orthopaedic surgeon. The union of the fracture was considered delayed if the fracture had failed to unite by 18 weeks.

Results: Out of the 31 patients, 25 patients were males (81%) and the remaining 6 patients were females (19%). Patients' age ranged 20–40 years with a mean of 27 years. There were 5 patients with type-o fractures (16%), 20 patients with type-I fractures (65%), and 6 patients with type-II fractures (19%). The cause of fractures was motor vehicle mishaps; 71% involved motorcycle accidents. The common site of fracture was midshaft (54.8%) compared with proximal third (45.2%). All patients were operated within a week post-injury. The operation time ranged 30–86 minutes with average of 46 minutes. Independent *t* test analysis showed statistically significant reduction in the operation time for the fixation of femur using single proximal locking method compared with proximal and distal locking method. In this study, all fractures achieved union. The average time to union for Winquist-Hansen type-o fractures (14 weeks) was significantly shorter compared to Winquist-Hansen type-I (18 weeks) and type-II (25 weeks). There was 3.2% incidence of post-operative superficial wound infection; all were superficial and successfully treated with intravenous antibiotic given for 2 weeks. In 2 Winquist-Hansen type-II fracture cases, there was shortening of 1 cm each. None of them had post-operative complication such as nerve injury, mal-union, non-union, and implant failure.

Conclusion: There was a significant reduction in the operation time for the fixation of femur using single proximal locking method compared with proximal and distal locking method. The average time to union for Winquist-Hansen type-o fractures were significantly shorter compared with Winquist-Hansen type-I and type-II. Based on the result, we conclude that single locked intramedullary nail is safe and beneficial to patients who sustained Winquist-Hansen type-o

and type-I femur fracture.

Supervisor:

Dr Bal Kishan

Co-supervisor:

Dr Liau Kai Ming

Dr K Manoharan

RESPIRATORY SYMPTOMS AND LUNG FUNCTIONS AMONG DOMESTIC WASTE COLLECTORS IN KOTA BHARU, KELANTAN

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Introduction: A variety of common injuries and diseases involving eye, skin, musculoskeletal systems, respiratory, and systemic diseases exist as a result of exposure, via inhalation or skin absorption, to a large variety of chemical compounds, bioaerosols, dusts, gases, and pathogens encountered by domestic waste collectors during the handling of solid waste.

Objectives: This study was aimed to determine the respiratory status, level of knowledge, attitude, and practice (KAP), and associated factors that could potentially impair the respiratory function among male domestic waste collectors in Kota Bharu.

Patients and Methods: A comparative cross-sectional study was conducted in September–October 2008 among 95 male domestic waste collectors (exposed group) and 96 male office workers (non-exposed group) in Kota Bharu. Subjects were individually interviewed using 2 sets of questionnaire to obtain information pertaining socio-demography, personal, occupation, respiratory symptoms as well as knowledge, attitude, and practice (KAP) towards health and respiratory risks from workplace exposure to biohazards. Physical examination and lung function test were conducted to each study subjects at their workplace.

Results: All 191 participants were Malay males with mean (SD) age of 39.9 (9.14) years among the domestic waste collectors compared with 41.4 (9.06) years among office workers. The mean (SD) working duration among domestic waste collectors was 11.2 (8.76) years compared with 10.3 (9.36) years among office workers. The most frequently reported respiratory symptom was shortness of breath (42% waste collectors, 31% office workers), followed by chest tightness (37% waste collectors, 27% office workers), morning phlegm (33% waste collectors, 17% office workers), and morning cough (20% waste collectors, 3% office workers). Physical examination revealed normal findings and there were no significant differences in all respiratory function parameters among exposed and non-exposed groups.

Exposed group had significantly lower mean percent score for knowledge and attitude, but higher mean percent score for practice; there was no significant difference of mean percent score for total KAP between exposed and non-exposed group. Height, duration of smoking, duration of working, and age were factors significantly related to FEV1 and FVC, and age was a factor significantly related to FEV1/FVC.

Conclusion: The study showed that chronic exposure to domestic waste could lead to higher prevalence of respiratory symptoms and mild effect on respiratory health among domestic waste collectors compared with office workers. Height, duration of smoking, duration of work, and age were factors associated with at least 1 of the lung function parameters among the exposed group. The level of knowledge, and attitude towards health and respiratory risks from biohazard exposure at workplace in the exposed group was unsatisfactory compared with non-exposed group.

Supervisor:

Dr Mohd Nazri Shafie

Co-supervisor:

Associate Professor Dr Mohamed Rusli Abdullah

A STUDY OF FEMAL SEXUAL DYSFUNCTION BY USING FEMALE SEXUAL FUNCTIONAL INDEX (FSFI) AMONG WOMEN AT THE AGE OF 40–55 YEARS OLD IN UNIVERSITI SAINS MALAYSIA, KUBANG KERIAN, KELANTAN

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MMed (O & G)

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Introduction: Sexual life is considered as one of the important aspect in a woman's quality of life; it reflects on physical, psychological, and mental well-being of the individual. Middle age women are additionally influenced by the hormonal changes that occur during menopause that affects their sexual functions, especially libido and orgasm.

Objectives: The study aimed to determine the prevalence of sexual dysfunction among 40–55 years old women, socio-demographic and sexual factors that influence libido (sexual desire) and orgasm domain, and the impact on HRT on sexual domain.

Methods: This cross-sectional descriptive study involved 434 local women, age of 40–55 years old, attending the Hospital Universiti Sains Malaysia. Sexual function was measured by using a self-administered, validated, Malay-version of the Female Sexual Function Index questionnaire. The questionnaire consists of socio-demographic data and a 19-item, multidimensional, self-report measure of female sexual functioning, which covers 6 basic domains of female

sexual functions: desire, arousal, lubrication, orgasm, satisfaction, and pain. Statistical analyses were performed using chi-square test and multivariate regression analysis.

Results: The mean age of the women was 47.5 (SD 4.3) years old. The overall prevalence of sexual dysfunction was 8.0%. The prevalence of sexual dysfunction for each domain was 18.4% for desire, 5.1% for arousal, 4.4% for lubrication, 2.1% for orgasm, 7.4% for satisfaction, and 6.9% for pain. The most significant predictors for desire were age of 40–45 years old (P value = 0.047) and more than 50 years old (P value = 0.017), Malay ethnicity (P value = 0.024), Chinese ethnicity (P value = 0.013), sexual arousal ($P < 0.001$), lubrication ($P < 0.001$), and satisfaction ($P < 0.001$). Lubrication and illness (renal disease) had significant association with the lack of orgasm ($P < 0.05$). Ageing, parity (2–5 and more than 5 children), and lack of lubrication were significantly associated with sexual pain disorders ($P < 0.05$). Hormone replacement therapy (HRT) did not significantly improve any sexual domain. Other socio-demographic variables, such as level of education, type of occupation, duration of marriage, and medical conditions, were less likely to result in significant disturbances on sexual function.

Conclusion: The prevalence of sexual dysfunction among the middle age, local women was not high. There is a negative association between age and sexual response in these women; the most affected sexual function domain was sexual desire. From this study, it was concluded that HRT did not have any positive impact on the sexual domain.

Supervisor:

Associate Professor Dr Shah Reza Johan Noor

REVIEW OF COMPLICATIONS OF ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY (ERCP) IN HOSPITAL UNIVERSITI SAINS MALAYSIA FROM 2000 TO 2006

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Introduction: Endoscopic retrograde cholangiopancreatography (ERCP) is an important procedure for the investigation and management of pancreaticobiliary diseases; endoscopists perform ERCP on a regular basis. However, the procedure has many risks. There is a recognized potential for significant morbidity, and a number of studies have identified patient and operator risk factors for the development of complications, such as small case volume. ERCP practice may vary between different institutions, endoscopic settings and health care environments, as well as physician's expertise and skill; all these variables may affect the outcome of the ERCP. The ERCP service in Hospital

Universiti Sains Malaysia (HUSM) has been in existence since the last two decades. However, until now, no formal study has been done to audit the ERCP service, and no information on the outcomes and complications of this procedure is available.

Objectives: This study was performed to review ERCP complications in HUSM. The information on complications of ERCP was obtained from a tertiary referral centre and compared with published figures.

Patients and Methods: Data were collected retrospectively from medical records of patient who had ERCP from January 2000 to December 2006. Complications were reviewed, and several factors were analyzed as risk factors for post-ERCP complications using univariate and multivariate analyses.

Results: The study involved 195 patients, for which 246 ERCPs were performed during the study period. There were 54 major complications with 7 cases of ERCP-specific mortality. The incidence of ERCP complications and mortality in HUSM were within the reported global range. Post-ERCP pancreatitis was the most frequent complication and occurred in 25 patients: mild in 15 patients, moderate in 5 patients, and severe in 5 patients. Cholangitis occurred in 19 patients: mild in 3 patients, moderate in 6 patients, and severe in 10 patients. Bleeding occurred in 4 patients, while only 2 patients had perforation during the procedure. ERCP was performed for 2 pregnant patients; 1 had abortion 10 days after the procedure. However, this patient also had post-ERCP pancreatitis preceding her abortion. The other patient continued her pregnancy and delivered with no complications. Other major complications were acute pulmonary embolism in 1 patient, cardiorespiratory arrest after sedation in 1 patient, and atrial fibrillation in 1 patient. Based on univariate analysis, several factors were identified as significant risk factors for post-ERCP overall complications: history of pancreatitis, performance of pancreatogram, use of pre-cut cannulation, normal cholangiogram, absence of stones, and failure of complete stone clearance. Only 2 factors were independently associated with high risk of overall complications by multivariate analysis, i.e., pancreatic duct injection and absence of stones. For post-ERCP pancreatitis, several conditions have been identified to be significant risk factors using univariate analysis: young age, history of pancreatitis, pancreatic duct injection, normal serum bilirubin, normal cholangiogram, absence of biliary stones, and pre-cut cannulation. Young age, history of pancreatitis, and pancreatic duct injection were also identified as independent risk factors using multivariate analysis. Several conditions were also identified as significant risk factors for cholangitis. Based on univariate analysis, significant factors were malignant jaundice, normal serum bilirubin, co-morbidity with high American Society of Anaesthesiologists (ASA) score, and presence of stricture or stenosis. Successful removal of bile ducts stones was found to contribute to lower risk of cholangitis compared with other therapeutic procedures. Multivariate analysis showed that, out of the tested factors, only the presence of stricture or stenosis was independently increasing the risk of post-ERCP

cholangitis.

Conclusion: The study verified the ERCP complication rate in HUSM, the nature of these complications, and their associated factors. Furthermore, the study highlighted the need for actions to limit or reduce the incidence and severity of the ERCP complications. Hopefully, this will result in better ERCP practice, providing a clearer picture of the risk–benefit ratios in different clinical scenarios and a greater ability in advising patients about their options.

Supervisor:

Dr Mohd Nor Gohar Rahman

Co-supervisor:

Dr Syed Hassan Syed Abd Aziz

NEOANGIOGENESIS AND CYCLIN D1 EXPRESSION IN COLORECTAL CARCINOMA

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MPath (Anatomic Pathology)

Department of Pathology

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Introduction: In Malaysia, colorectal carcinoma is the most common type of cancer among men. Clinical behaviour of colorectal cancer is currently determined by prognostic parameters, which include tumour size, site, stage, and histological grade. Many patients are having recurrences despite the tumour being diagnosed as a local disease.

Objectives: The aim of this study was to determine Cyclin D1 expression and its relationship with clinicopathological variables, especially the Modified Dukes stage.

Patients and Methods: In this cross-sectional study, 61 colorectal carcinoma patients were selected after applying inclusion and exclusion criteria. The patients' archived, paraffin-embedded tissue blocks were obtained from the Department of Pathology, Hospital Universiti Sains Malaysia. Cyclin D1 expression was evaluated based on the intensity and percentage of positive nuclei. In addition, microvessel density, especially at the peritumoural and intratumoural area, was assessed using CD34 endothelial marker. The relationships between Cyclin D1 expression, microvessel density, and clinicopathological variables (particularly with the Modified Dukes stage, which was assessed using immunohistochemical EnVision technique) were analysed.

Results: For the expression of Cyclin D1, samples were divided into low expresser and high expresser groups. 93.5% of cases expressed Cyclin D1 as nuclear brownish precipitate with 55.7% of cases showing low staining intensity. Univariate analysis showed no significant correlation between staining intensity and clinicopathological variables, i.e., sex, race, size of tumour, site of tumour, histological grade, lymph node

metastasis, and tumour stage. 54.1% of colorectal carcinoma cases were in the distribution of less than 10% positive nuclei. Univariate analysis resulted in significant correlations between percentage of positive nuclei and sex, race, lymph node metastasis, and stage of tumour. Other parameters, i.e., size, site of tumour, and histological grade, were not significantly correlated with the percentage of positive nuclei. Multivariate analysis showed that the percentage of positive nuclei was significantly correlated with only lymph node metastasis and tumour stage with ($P < 0.05$). The mean (SD) of peritumoural and intratumoural microvessel densities were 66.8 (17.9) vessel per mm² and 76.7 (28.7) vessel per mm², respectively, indicating the presence of more vessels in the intratumoural areas. The microvessel densities were later grouped into low vascularity and high vascularity; both peritumoural and intratumoural areas had low vascularity. Peritumoural area did show some correlations with clinicopathological parameters, i.e., size, histological grade, stage, and lymph node metastasis; however, the results were not statistically significant. In contrast, intratumoural area did not show any correlation with the clinicopathological parameters.

Conclusion: Percentage of positive nuclei is the most important and useful way to evaluate Cyclin D1 expression. It was significantly correlated with sex, race, tumour stage, and lymph node metastasis. In addition to this, the percentage of positive nuclei was found to be an independent parameter in predicting lymph node metastasis and tumour stage. Microvessel density does not play any role as a prognostic factor in colorectal carcinoma.

Supervisor:

Dr Venkatesh R Nair

EFFECT OF THE SEA CUCUMBER EXTRACT AND TRICHLOROACETIC ACID (TCA) IN THE HEALING PROCESS OF THE TYMPANIC MEMBRANE PERFORATION—PILOT STUDY

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MMed (ORL–Head and Neck Surgery)

Department of ORL–Head and Neck Surgery

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Introduction: Gamat is a marine invertebrate that has high therapeutic value, such as its capability to rejuvenate tissues and hasten wound healing. Its effectiveness is species-specific and dose-dependant. Trichloroacetic acid (TCA) has been utilized to promote tissue generation; the acid cauterization breaks up the fibrosis on the perforation's rim and promotes the formation of granulation and proliferation of new tissues. It has been proposed to be used in treating tympanic membrane perforation. Tympanic membrane perforation is a common problem in otorhinolaryngology.

Many materials and procedures have been used to promote the healing process of the tympanic membrane perforation; these include the use of amniotic membrane, cigarettes paper, and fat plug.

Objective: The objective of this study was to evaluate the healing effect of co-treatment of gamat with TCA versus TCA alone in tympanic membrane perforation.

Patients and Methods: This was a prospective single-blind randomized control trial involving patients with perforated tympanic membrane at the ORL-HNS department, Hospital Universiti Sains Malaysia. The patients were divided into 2 treatment groups: gamat with TCA, and TCA alone. Treatments were performed following the Derlacki method, with some modifications. Both groups were serially examined every 2 weeks. Their tympanic membrane were visualized using rigid otoscope (otoscope size = 2.7 mm), and a photo was taken in every procedure and during follow-up. The perforation area was measured using Material Word Station-Image Analyzer.

Results: There were significant healing improvements of perforated tympanic membrane by using TCA cauterization alone. There were also significant healing improvements of perforated tympanic membrane by using gamat extract with TCA cauterization in perforated tympanic membrane. There was no significant difference of mean healing pattern between the co-treatment of gamat with TCA and single treatment of TCA.

Supervisor:

Professor Dr Dinsuhaimi Sidek

Co-supervisor:

Professor Dr Syed Mohsin Syed Sahil Jamalullail

AN EVALUATION OF QUALITY OF LIFE AMONG PATIENTS UNDERGOING ANGIOGRAM / PERCUTANEOUS CORONARY INTERVENTION IN HOSPITAL UNIVERSITI SAINS MALAYSIA

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MMed (Internal Medicine)

Department of Medicine

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Introduction: Percutaneous coronary intervention (PCI) has emerged as an important mode of treatment in coronary artery disease (CAD). Despite extensive and complexity of PCI, there is no local data to support the benefits of PCI, including the improvement of the quality of life (QOL).

Objective: The goal of this study was to evaluate the impact of PCI on self-perceived QOL among patients after PCI by using Medical Outcome Survey Short Form-36 (MOS SF-36) questionnaires.

Patients and Methods: This is a single centre cross-

sectional study in Hospital Universiti Sains Malaysia (HUSM) conducted among patients electively planned for PCI. We administered the MOS SF-36 questionnaire which has eight domains of QOL such as a physical function, social function, physical role, vitality, general health, mental health, bodily pain, and emotional role. Total scores of improvement were calculated at Day 1 (pre-PCI) and Day 30 (post-PCI).

Results: 75 patients were enrolled in this study. The results showed significant improvement of QOL, with increments in all domains: total score (from 426.1 to 671.1), physical role (from 32.3 to 86.7), emotional role (from 40.0 to 92.9), general health (from 52.4 to 84.8), bodily pain from (54.6 to 83.9), physical function from (56.7 to 84.3), vitality from (56.2 to 77.0), social functioning from (69.5 to 84.0), and mental health from (64.4 to 77.6). All improvements in domains were statistically significant with $P < 0.001$.

Conclusion: Post PCI / angiogram showed significant improvement of QOL assessed by MOS SF-36 questionnaires at Day 30 post-procedure. SF-36 questionnaires provide a simple, reliable, and better predictor in overall QOL assessment by summarizing all eight domains of QOL. Early time return to normal activity with minimum hospital stay along with significant improvement of QOL perceived at Day 30 post-intervention are favourable factors to be considered in choosing PCI as a mode of treatment in CAD.

Supervisor:

Associate Professor Dr Zurkurnai Yusof

Co-supervisor:

Dr Suhairi Ibrahim

RELATIONSHIP BETWEEN INTERVERTEBRAL DISC HEIGHT, LATERAL FORAMEN SIZE, AND NERVE ROOT IMPINGEMENT OF LUMBAR VERTEBRA

Dr Mohammad Nazir Bin Md Hassan
MMed (Orthopaedic)

Department of Orthopaedic

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Introduction: Degenerative disc disease is a common condition in elderly patients, and its incidence increases with ageing. Patients usually present with back pain and, sometimes, with symptoms of nerve root compression. The degenerative disc disease usually worsens with time. It can be recognized radiographically as a decrease in the intervertebral disc height. Reduction of disc height results in the reduction of lateral foramen size, where the nerve roots exit from the spinal canal.

Objectives: The main objective of this study was to establish the relationship between the lateral foramen size and nerve root impingement in degenerated disc disease. In addition, the study aimed to determine the correlation

between intervertebral disc height and lateral foramen size in degenerative disc disease and radiographically normal disc.

Patients and Methods: This cross-sectional study analysed data taken from the magnetic resonance imaging (MRI) of 62 subjects randomly selected from the radiology archives. The data consisted of measurements of the intervertebral disc height, lateral foramen size, and nerve root size, bilaterally. Reports on symptoms of nerve root compression (such as numbness and weakness) were attained from the patient medical record dated around the day MRI was performed. The findings were analysed using SPSS bivariate correlation test and independent sample t test.

Results: The mean intervertebral disc height was 6.7 ± 1.4 mm at L1L2 level and showed increasing trend at subsequent levels: L2L3 (7.8 ± 1.4 mm), L3L4 (8.7 ± 1.6 mm), and L4L5 (9.0 ± 1.8 mm). At L5S1 level, the mean intervertebral disc height was 8.7 ± 2.0 mm. The lateral foramen height measurements (L1L2–L4L5) were between 17.75 ± 2.30 mm and 19.65 ± 2.25 mm. The mean L5S1 foramen height was 16.40 ± 2.71 mm. The nerve root compression symptoms most commonly occur at L5S1. Statistic analysis showed strong correlation between the intervertebral disc height and lateral foramen height at all levels of the lumbar spine in both degenerated disc and normal disc; however, no correlation was observed between intervertebral disc height and lateral foramen width. There was also no significant correlation between lateral foramen size and nerve root compression at lumbar vertebral.

Supervisor:
Associate Professor Dr Mohd Imran Yusoff
Co-supervisor:
Dr Mohd Shafie Abdullah

NON-ATTENDANCE TO THE PAEDIATRIC CLINIC IN HOSPITAL UNIVERSITI SAINS MALAYSIA (HUSM)

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MMed (Paediatrics)

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Health Campus, 16150 Kelantan, Malaysia

Introduction: Non-attendance is suspected to be a major problem in the paediatric clinic. Non-attendance could lead to severe consequences to the patients, and this could contribute a major burden to the health care system. Several studies have reported more than 30% of non-attendance cases. In Malaysia, no such report was available.

Objectives: The study aimed to determine the rate of non-attendance in the Paediatric Clinic, Hospital Universiti Sains Malaysia (HUSM), and to verify the efficacy of a phone call, given to fix a new appointment for every contactable non-attending patient, in improving clinic attendance.

Patients and Methods: This cross-sectional study

involved all non-attending patients who had an appointment in the Paediatric Clinic during the study period, from 1 January 2009 to 28 February 2009. Non-attendees who were contactable by phone were included for the interventional segment of the study. A prepared proforma was completed for every non-attendee. Primary outcome measures included attendance rate and efficacy of a phone call to improve attendance.

Results: During the 1-month study period, 1563 patients had appointment in Paediatric Clinic. A total of 497 patients (31.8%) failed to attend their appointment. There were significant differences of attendance depending on clinic sessions, weather condition, and types of clinic. From 160 patients who were successfully contacted, 95 patients were interested in having a new appointment. There were 55 patients who already had a new appointment at the time they were contacted, 3 non-attendees had died at home, 3 had been admitted, and 2 had moved to another state and were followed-up there. The other 2 patients were not interested in getting a new appointment. 23.3% from the intervention group did not attend the clinic after the given new appointment.

Conclusion: Non-attendance rate is high in the Paediatric Clinic, HUSM. A phone call to fix a new appointment is effective in reducing the non-attendance rate.

Supervisor:
Professor Dr Hans Amin Rostenberghe
Co-supervisor:
Associate Professor Dr Nik Zainal Abidin Nik Ismail

ASSESSMENT OF KNOWLEDGE, ATTITUDE, AND PRACTICES AMONG OPERATING ROOM STAFF NURSES TOWARDS THE STANDARD AND TRANSMISSION-BASED PRECAUTION IN UNIVERSITY HOSPITAL

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Introduction: The standard and transmission-based precautions are strongly recommended as the guidelines for preventing infections and ensuring occupational safety. This survey discussed the level of knowledge, attitude, and practices in relation to the standard precautions and transmission-based precautions among the staff nurses.

Objective: The objective of this survey was to identify relationship between demographic profiles of participants and the knowledge, attitude, and practices towards standard precautions and transmission-based precautions.

Patients and Methods: This self-reported survey was conducted in April 2009 among operating room staff nurses. The questionnaire comprised 3 major components:

knowledge, attitudes, and practices towards the standard and transmission-based precautions.

Results: Out of 100 staff nurses, 75 of them had returned the completed questionnaires on the same day of distribution. There was a significant difference between male and female staff nurses in terms of the practices of the standard and transmission-based precautions. There was a weak correlation between the level of knowledge and the age of the female staff. However, in overall, the results did not show any clear correlation, and there was no statistical significance observed in the different demographic profiles concerning the knowledge, attitudes, and practices towards the standard and transmission-based precautions.

Conclusion: This study on knowledge, attitudes, and practices of operating room staff may benefit healthcare educators in planning and developing appropriate educational programmes, assist organizations to provide a safe workplace climate, and aid healthcare workers to learn the importance of personal responsibility in preventing the transmission infectious disease.

Supervisor:

Associate Professor Dr Saedah Ali

Co-supervisor:

Associate Professor Dr Wan Aasim Wan Adnan

ASSOCIATED FACTORS AND SALIVARY BIOMARKER OF STRESS AMONG ASSISTANT MEDICAL OFFICERS IN MINISTRY OF HEALTH (MOH) HOSPITALS IN KELANTAN AND TERENGGANU

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MMed (Occupational Health)

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Objectives: The objectives of this study were to determine the prevalence of stress among assistant medical officers and the factors contributing to stress. In addition, the presence of biomarker of stress (cortisol) in the saliva was assessed.

Patients and Methods: Study subjects were assistant medical officers from the government hospitals in Kelantan and Terengganu. A questionnaire consisting of demographic, work-related, and stress-related information were completed and returned by the subjects. Salivary cortisol level was also measured.

Results: The prevalence of stress among assistant medical officers was 13.7% (95% CI 8.61 to 18.79). Simple linear regression showed that age ($P = 0.012$), duration of employment ($P = 0.023$), skill discretion ($P = 0.039$), decision authority ($P = 0.039$), decision latitude ($P = 0.012$), psychological job demand ($P = 0.015$), job insecurity ($P =$

0.000), co-worker support ($P = 0.001$), social support ($P = 0.003$), hazardous conditions ($P = 0.001$), toxic exposures ($P = 0.008$), and total physical hazards ($P = 0.001$) were significant factors associated with stress. However, only decision latitude ($P = 0.025$), psychological job demand ($P = 0.021$), job insecurity ($P = 0.009$), and total physical hazards ($P = 0.008$) were significant by general linear regression. There was no significant ($P = 0.393$) correlation between salivary cortisol and stress score. The observed Spearman correlation was 0.066, which suggested no correlation between these 2 parameters. However, salivary cortisol was found to be significantly higher ($P = 0.033$) among stressed compared to non-stressed assistant medical officers (0.78 µg/dL versus 0.67 µg/dL, respectively).

Conclusion: The prevalence of stress was 13.7%. Decision latitude, psychological job demand, job insecurity, and total physical hazards were the significant associated factors of stress. There was no correlation between salivary cortisol and stress score. However, salivary cortisol was significantly higher among stressed assistant medical officers. Hence, improving the working environment, joint workplace initiatives, team-oriented approaches practice, empowering, and giving more autonomy would improve the work climate and alleviate stress among assistant medical officers.

Supervisor:

Dr Aziah Daud

Co-supervisor:

Dr Wan Mohd Zahiruddin Wan Mohammad

THE EFFECT OF SINGLE DOSE GABAPENTIN ON HAEMODYNAMIC CHANGES FOLLOWING LARYNGOSCOPY AND TRACHEAL INTUBATION

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Introduction: Adrenergic responses manifested by tachycardia and hypertension are known to occur following laryngoscopy and intubation. Various drugs have been used in attempts to attenuate this response; however, all have their limitations. A more satisfactory approach for this situation might be to use 800 mg gabapentin, which can provide good control for a short period of laryngeal tracheal intubation for a planned elective case that require general anaesthesia. Gabapentin also have other complimentary actions. Many studies using gabapentin as a single agent peri-operatively showed promising outcomes. In this study, the capability of this drug to attenuate the haemodynamic response to laryngoscopy and tracheal intubation was evaluated.

Objectives: The objectives of this double-blinded,

randomized study were to compare the effect of haemodynamic changes after laryngoscopy and tracheal intubation in patients pre-treated with placebo or a dose of gabapentin (600 mg or 800 mg) and to determine the optimal dose of gabapentin to attenuate the haemodynamic changes.

Patients and Methods: A total of 111 patients of ASA physical status I or II undergoing elective surgery were selected and divided into 3 pre-treatment groups: placebo (control group), 600 mg gabapentin, and 800 mg gabapentin, all as pre-treatments prior to intubation. All patients were then induced using intravenous fentanyl (1.5 µg/kg), propofol (2 mg/kg), and esmeron (1.5 mg/kg). Intubation was performed 3 minutes following esmeron injection. Anaesthesia was maintained with nitrous oxide in oxygen with a ratio of 2:4 and 2.0% sevoflurane. Selected parameters, i.e., heart rate (HR), systolic blood pressure (SBP), diastolic blood pressure (DBP), and mean arterial pressure (MAP) were recorded prior to injection of study drugs as baseline, at 1 minute after laryngeal tracheal intubation, and every minute after laryngoscopy and tracheal intubation for 5 minutes. Patients were also monitored for complications, such as bucking, moving limbs, bronchospasms, hypotension, and arrhythmia.

Results: The results showed that mean HR, SBP, DBP, and MAP were increased in all groups after laryngoscopy and tracheal intubation compared with baseline. However, percentages of increase in the HR, SBP, DBP, and MAP after laryngoscopy and tracheal intubation in the 800 mg gabapentin group were the least compared with the other groups.

Conclusion: This study has shown that the dose of gabapentin at 800 mg was able to give the minimum percentage changes of the mean HR, SBP, DBP, and MAP after laryngoscopy and tracheal intubation within a certain period (5 minutes). It can be concluded that pre-emptive treatment with gabapentin (800 mg) can be used to attenuate the haemodynamic response during laryngeal tracheal intubation.

Supervisor:
Dr Nizar Abd Jalil

EFFECTIVENESS OF OCCUPATIONAL STRESS MANAGEMENT PROGRAM AMONG PETROCHEMICAL INDUSTRY WORKERS IN KERTEH, TERENGGANU

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Introduction: Occupational stress is an increasingly important occupational health problem that can lead to a significant economic lost. Petrochemical industry workers are

one of several occupational groups potentially experiencing high level of stress. They work in high-pressure environment, handling hazardous material, and managing large amount of chemical energy.

Objectives: The aim of this study was to determine the prevalence and associated factors of depression, anxiety, and stress among workers in the petrochemical industry. In addition, an intervention program on occupational stress was introduced and evaluated.

Patients and Methods: This was an intervention study to assess the effect of stress management intervention program based on DASS42 score. The stress management program adopted consisted of lectures on stress and stress management, video sessions, question and answer sessions, pamphlet distribution, and aerobic exercises. Validated Malay-versions of the Depression, Anxiety, and Stress score (DASS42) and Job Content Questionnaire (JCQ) were used. The respondents were asked to complete DASS42 and JCQ at the beginning of the program. This gave the prevalence and associated factors of depression, anxiety, and stress. The respondents were again asked to complete the DASS42 immediately after the intervention program and 1 month post-intervention. Multiple linear regression analysis was done to evaluate the stress-associated factors, and repeated measures of analysis of variance (ANOVA) were done to determine the effect of intervention.

Results: Out of 51 participants, there were 50 Malays and 1 Indian. The mean (SD) age was 33.57 (7.39) years old and duration of work was 7.27 (3.47) years. The prevalence (95% CI) of depression, anxiety, and stress of moderate severity or more were 23.53 (95% CI 11.48 to 35.58), 31.37 (95% CI 18.19 to 44.55), and 21.57 (95% CI 9.89 to 33.25), respectively. Type of work, decision latitude, and psychological job demand were found to be associated with depression. Level of education and exposure to toxic material were associated factors for anxiety. Marital status and psychological job demand were associated factor for stress. In the assessment of effectiveness of stress management program, it was found that there were significant reduction in occupational stress post-intervention (immediate and 1 month after) with estimated marginal mean of depression score, anxiety score, and stress score ($P < 0.001$).

Conclusion: There is an evidence of occupational stress in the petrochemical workplace where prevalence of stress, anxiety, and depression were considerably high. It indicates the needs to improve the work environment, in terms of decision latitude, psychological job demand, and toxic exposure. A regular, short stress management program is effective in reducing some aspect of depression, anxiety, and stress in the petrochemical workers.

Supervisor:
Associate Professor Dr Mohamed Rusli Bin Abdullah
Co-supervisor:
Dr Aziah Binti Daud
Dr Nor Azwany Yaacob

THE PROPORTION OF METABOLIC SYNDROME PATIENTS AND ASSOCIATED FACTORS AMONG SUBJECTS UNDERGOING CORONARY ANGIOGRAM IN HOSPITAL UNIVERSITI SAINS MALAYSIA (HUSM), KOTA BHARU, KELANTAN, USING IDF AND ASIAN MODIFIED NCEP ATP III CRITERIA

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Introduction: There is an increasing prevalence of metabolic syndrome worldwide, which is closely related to the presence of coronary artery disease. Metabolic syndrome worsens the severity of coronary artery disease. However, information on the percentage of metabolic syndrome among heart disease patients in Malaysia is lacking.

Objectives: The objectives of this study were to determine the proportion of metabolic syndrome using both the Internal Diabetes Federation (IDF) and Asian-modified National Cholesterol Education Program—Third Adult Treatment Panel III (NCEP ATP III) criteria, and to determine the factors associated to metabolic syndrome among patients undergoing coronary angiogram in Hospital Universiti Sains Malaysia.

Patients and Methods: A cross-sectional study was conducted among 236 patients who fulfilled the inclusion criteria and were suspected of having coronary artery disease. These patients came for elective coronary angiograms from September 2006 to April 2008; 228 patients underwent angiogram procedure while 8 patients were unable to do so due to several reasons. Metabolic syndrome was defined using both the IDF and Asian-modified NCEP ATP III criteria. The required information on demographic, physical, and biochemical parameters related to the metabolic comorbidities was recorded in a data collection form. The patients' medical records were then reviewed to assess the degree of coronary artery disease severity.

Results: The proportion of metabolic syndrome based on IDF criteria among patients undergoing coronary angiogram in HUSM was 50.0%, and based on Asian-modified NCEP ATP III criteria, 76.8%. The majority of patients who underwent angiograms were diagnosed with coronary artery disease (73%). There were 20% patients with one-vessel disease while 53% patients had multi-vessel disease; 22% patients with two-vessel disease and 31% patients with three-vessel disease. There was a significant association between metabolic syndrome patients (based on IDF criteria) and smoking (OR = 2.08, 95% CI 1.20 to 3.63). Based on the Asian-modified NCEP ATP III criteria, there were associations between metabolic syndrome and age (OR = 2.20, 95% CI 1.04 to 4.68), female sex (OR = 3.99, 95% CI 1.28 to 12.30), and smoking (OR = 7.00, 95% CI 3.05 to 16.00).

Conclusion: The proportion of metabolic syndrome among patients undergoing coronary angiogram was similar to other studies. The proportion of metabolic syndrome was higher if the Asian-modified NCEP ATP III criteria were used compared with IDF criteria. Age of more than 60 years old, female sex, and smoking were significantly associated with presence of metabolic syndrome.

*Supervisor:
Dr Azidah Abdul Kadir*

MULTIMODALITY ASSESSMENT OF MILD AND MODERATE HEAD INJURY PATIENTS

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Objectives: The aim of this research was to compare the disability, which may be proven using the analysis of the Barrow Neurological Institute (BNI) Screen for Higher Cerebral Functions, as well as the disturbance in balance control, sensory perception, and the presence of nystagmus in patients with mild and moderate head injury.

Patients and Methods: This was a prospective study conducted from August 2006 until November 2007. The selection criteria were patients who sustained mild and moderate head injury and admitted or referred to the Hospital Universiti Sains Malaysia. Qualified patients were called within 4 to 6 weeks after the occurrence of head injury. Their complaints of headache, memory loss, sensory disturbance, as well as gait and visual abnormalities would be noted. The patients were given a series of tests, starting with the BNI Screen for Higher Cerebral Functions, conducted in the local, Malay language. The Sensory Organization Test (SOT) was conducted using the SMART Balance Master (NeuroCom International, Inc, USA) to test for balance, i.e., how visual, somatosensory, and vestibular inputs affect a patient's ability to maintain functional balance. The presence of nystagmus was tested using the Visual Eyes Nystagmography (Micromedical Technologies, USA) where a stimulus was delivered via a tower, and the movement of the eye was followed, recorded, and analyzed for abnormalities. The cold detection threshold (CDT) was measured with Computerised Assisted Sensory Evaluator (WR Medical Electronics, USA) using the 4, 2, and 1 stepping algorithm with null stimuli. The test was performed on the dorsal aspect of the palm of the left hand; a subject indicated that a stimulus was felt by pressing the iyesí button (and no button, if otherwise), and the just noticeable difference (JND) was calculated from the subjects responses. Data's analyses were done using the SPSS version 12.0.

Results: The study involved 11 male patients (92%) and one female patient (8%). The age of the patients ranged over 18-63 years, with a mean of 33.3 years and a median of 29.0 years. A majority of the patients cases were categorized under moderate head injury (75%), and all (100%) injuries resulted from motor vehicle accidents. Patients with mild head injury have higher BNI score compared with those with moderate head injury, with mean values of 45.00 and 43.11, respectively. A similar pattern was observed in BNI sub-test scores, particularly in speech and language, attention/concentration, visuo-spatial and visual problem solving, and memory. However, none of the results were significant by Mann-Whitney test. There was no evidence to support the hypothesis that moderate head injury causes significant disturbance in balance. Both groups of patients, with mild and moderate head injury, has normal balancing reflex when tested using the computerized post urography. In addition, no significant sensory disturbance or post-traumatic nystagmus was observed.

Conclusion: The disability reported by the patients, such as complaints of forgetfulness and lack of concentration, could not be demonstrated by using the BNI Screen for Higher Cerebral Functions. Other tests carried out failed to prove any significant disturbances. Therefore, the cause and effect of a post-concussive syndrome can only be diagnosed clinically.

Supervisor:
Professor Dr Jafri Malin Abdullah

ANAEMIA AMONG HIV-INFECTED PATIENTS: PREVALENCE, ASSOCIATED RISK FACTORS, AND QUALITY OF LIFE

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MMed (Family Medicine)

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Health Campus, 16150 Kelantan, Malaysia

Introduction: Anaemia is a common manifestation of HIV infection, with reported prevalence ranging from 30% in asymptomatic HIV patients to 80% in clinical AIDS patients. It is associated with disease progression, poor quality of life, and increased mortality in HIV-infected individuals.

Objectives: The objectives of the study were to determine the prevalence of anaemia, its associated factors, and impact on quality of life in HIV-infected individuals. Correlation between haemoglobin level and CD4 count was also assessed.

Patients and Methods: A cross-sectional study was conducted among 248 HIV-infected adults attending the Infectious Disease Clinic, Hospital Raja Perempuan Zainab II, Kota Bharu, from 1 January 2008 until 31 December 2008. Patients who were pregnant or on combination antiretroviral therapy were excluded from the study. The socio-demographic

and medical data, including the latest haemoglobin and CD4 results, were taken for analysis. Assessment on the quality of life was done using Medical Outcome Study-HIV (MOS-HIV) questionnaire.

Results: Overall prevalence of anaemia was 46.0% (95% CI 39.77 to 52.10), with a mean (SD) haemoglobin value of 12.3 (2.4) g/dL. In multiple logistic regression analysis, several factors were observed to be significantly associated with anaemia: CD4 count of less than 200 cells/ μ L (OR 5.28, 95% CI 2.53 to 11.01), oral candidiasis (OR 5.02, 95% CI 1.82 to 13.87), history of blood transfusions (OR 4.87, 95% CI 1.53 to 15.49), and income of RM501-RM1000 (OR 0.40, 95% CI 0.17 to 0.94 and more than RM1000 (OR 0.24, 95% CI 0.12 to 0.52). There was a significant correlation between the haemoglobin value and CD4 count ($P < 0.001$, Spearman correlation = 0.443). Anaemic patients had significantly lower MOS-HIV subscale scores in general health perception, pain, physical function, role function, energy, and quality of life ($P < 0.05$).

Conclusion: The high prevalence of anaemia among HIV-infected individuals was comparable with other countries. Anaemia significantly impaired the quality of life of these individuals. Knowing the associated factors for anaemia should prompt a more careful evaluation into the presence of anaemia in any HIV-infected individuals.

Supervisor:
Dr Juwita Shaaban:
Co-supervisors:
Dr Amaluddin Ahmad
Dr Mahiran Mustafa

FAMILY PRESENCE DURING CARDIOPULMONARY RESUSCITATION: ATTITUDES AND EXPERIENCES OF MEDICAL PERSONNEL AND PARENTS

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MMed (Paediatrics)

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Introduction: Presence of family during cardiopulmonary resuscitation (CPR) is not a widespread practice; however, it is becoming more common nowadays. Normally, family members are not allowed to be present during CPR, and this is a true medical practice in most hospitals in Malaysia.

Objectives: The study aimed to determine the attitudes and experiences of medical personnel and parents in Hospital Universiti Sains Malaysia and Hospital Sultanah Nur Zahirah regarding family presence during CPR in children and the associated demographic factors that contribute toward such attitudes.

Patients and Methods: This was a prospective cross-

sectional study. Respondents include medical personnel caring for sick children and convenience sample of parents whose children were admitted in these hospitals. A questionnaire was developed based on previous literature review; the questionnaire incorporated demographic data, questions on CPR experiences, and a series of attitude statement that were rated using 5-point Likert scale. A self-administered questionnaire was given to the medical personnel while the parents were interviewed using a standard questionnaire after giving their verbal consent. A brief video was showing to the parents before the interview to increase the understanding of CPR. The attitude, experiences, and association of demographic factors with the acceptance of family presence during CPR in children were studied.

Results: Only 86 (19.9%) of medical personnel had previously participated in the CPR in children in the presence of family members. Out of 100 parents, 19 (19%) had experienced being present during CPR of their children. A majority of 279 medical personnel (64.5%) did not approve allowing family members to be with their children during CPR; However, a majority of 253 medical personnel (58.6%) would like to be present during CPR of their own children. On the other hand, 74 parents (74%) were of the opinion that family members should be allowed to be present during CPR. Logistic regression analysis demonstrated no significant association between the agreement of family presence during CPR with the demographic factors in both medical personnel and parents.

Conclusion: Medical personnel and parents showed different attitudes toward family presence during CPR in children.

Supervisor:
Professor Dr Quah Ban Seng
Co-supervisor:
Dr Noraida Ramli

THE PREVALENCE OF URINARY INCONTINENCE, ITS ASSOCIATED RISK FACTORS, AND THE IMPACT ON QUALITY OF LIFE AMONG MARRIED WOMEN IN HOSPITAL SULTANAH NUR ZAHIRAH, KUALA TERENGGANU

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MMed (O & G)

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Introduction: Urinary incontinence is defined by the International Continence Society as the complaint of any involuntary leakage of urine. Urinary incontinence is a common condition with significant medical, social, and psychological problems in women. It is very common in women that it is often mistakenly viewed as a natural process

of ageing.

Objectives: The aim of this study was to determine the prevalence of urinary incontinence as well as its risk factors and impact among married women.

Patients and Methods: A cross-sectional descriptive analysis was conducted among 300 married women attending Hospital Sultanah Nur Zahirah. A structured questionnaire, prepared in Malay language, was used to collect the data. The questionnaire consisted of 3 parts. Part 1 was on the demographic data and medical history of the respondent, e.g., age, education, occupation, weight, height, parity, menopause status, surgical, obstetrical, gynaecological history. Part 2 and 3 were the validated Bristol Female Lower Urinary Tract Symptom (BFLUTS) questionnaire consisting of 34 questions that provided the assessment of incontinence, other urinary symptoms, sexual function, and aspect of quality of life. Statistical analyses were performed using chi-square test and multiple logistic regression analysis.

Results: The mean age of the women was 41.0 (SD 9.86) years old. The overall prevalence of urinary incontinence was 37.7%. The prevalence of stress incontinence was 16.7%, urgency incontinence, 9.3%, and mixed incontinence, 11.7%. Factors that influenced overall urinary incontinence were parity, menopause, duration of menopause, and mode of delivery. Among the different modes of delivery, spontaneous vagina deliveries and instrumental deliveries had significant influence on urinary incontinence. Mode of delivery and the increases in parity and duration of menopause were significantly influencing stress incontinence. Mixed incontinence was significantly influenced by menopausal status of the women and the increases in age and duration of menopause. No risk factor that could be significantly associated with urgency incontinence was observed in this study. All types of urinary incontinence (stress, urgency, and mixed) significantly affected the quality of life of the women, especially in physical activities ($P < 0.05$), functional activities ($P < 0.05$), social life ($P < 0.05$), and sexual life ($P < 0.05$). Only 14.3% of the women experiencing incontinence sought treatment.

Conclusion: The prevalence of urinary incontinence was high among the studied population. Stress incontinence had the highest prevalence, followed by mixed incontinence and urgency incontinence. All types of urinary incontinence were significantly affecting the quality of life of the women. The percentage of incontinence women who sought treatment was very low. It was recommended for public education to focus on cognitive and affective learning in order to increase the public knowledge about the causes and treatments of incontinence, and to remove the stigma surrounding incontinence.

Supervisor :
Dr Mohd Pazudin Ismail
Co-supervisors:
Professor Dr Nik Mohamad Zaki Nik Mahmood
Dr Nasir Tak Abdullah

EVALUATION OF 8-HYDROXYDEOXYGUANOSINE ENZYME AND MICROSCOPIC FEATURES IN PRIMARY AND RECURRENT PTERYGIA

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Introduction: Pterygium is a common external ocular disease that normally occurred in the tropical regions because of the exposure to sunlight, which is considered as a major factor in the development of pterygium. Sunlight contains ultraviolet B radiation that causes oxidative damage to the DNA of the cells. This leads to the production of 8-OHdG enzyme, which is highly mutagenic, that increase cellular proliferation and development of pterygium.

Objectives: The study objectives were to demonstrate the association between the presence of 8-OHdG enzyme and the type of pterygium, as well as to determine the microscopic features (cell maturation, epithelial cell layers, and stromal vascularity) of primary and recurrent pterygia, and comparing these features between those with positive and negative 8-OHdG enzyme in pterygia.

Patients and Methods: A total of 92 samples were collected from the pterygium patients. The samples were processed for histopathology examination and immunohistochemistry test to detect the presence of 8-OHdG enzyme.

Results: The presence of 8-OHdG enzyme was 63.6% in primary pterygium, 16.6% in recurrent pterygium, and 16.0% in normal conjunctiva (control) group. There was a significant association between the presence of 8-OHdG enzyme and primary pterygium ($P < 0.001$). The highest cell maturation (Grade 3 of 10 or more nucleated cells) was observed in normal conjunctiva (in 5 samples), followed by primary pterygium (in 2 samples) and recurrent pterygium (none). The mean epithelial cell layer in primary pterygium was 6, and in recurrent pterygium, 5; both were higher than the mean of control group, which was 3. The means of stromal vascularity were 9 in primary pterygium and 12 in recurrent pterygium, while in normal conjunctiva it was 3. There was no significant difference in the mean cellular maturation, epithelial cell layers, and stromal vascularity between those with positive and negative 8-OHdG enzyme in all types of pterygium.

Conclusion: There was significant association between the presence of 8-OHdG enzyme and primary pterygium. Histopathology examination revealed increased cellularity and vascularity in recurrent pterygium, which is higher than primary pterygium; both showed higher figures than in normal conjunctiva. There was no significant difference in the mean cellular maturation, epithelial cell layers, and stromal vascularity between those with positive and negative 8-OHdG enzyme in all types of pterygia. There was no significant

difference in the mean cellular maturation and epithelial cell layers associated with 8-OHdG enzyme between the different pterygium groups; however, there was significant difference in the mean stromal vascularity associated with 8-OHdG enzyme between primary pterygium and normal conjunctiva.

*Supervisor:
Associate Professor Dr Mohtar Ibrahim
Co-supervisor:
Associate Professor Dr Hasnan Jaafar*

A STUDY OF BLOOD GLUCOSE LEVEL DURING ADMISSION AND 24 HOURS POST-OPERATION WITH THE OUTCOME OF TRAUMATIC BRAIN INJURY IN HOSPITAL KUALA LUMPUR: AN OBSERVATIONAL STUDY

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Introduction: Traumatic brain injury (TBI) has been associated with acute stress response via sympathoadrenomedullary axis of which, clinically, can be reflected in the increase of blood sugar level.

Objectives: This study aimed to determine whether isolated TBI would cause any increase in blood sugar level on admission and 24 hours after having surgical intervention for the injury.

Patients and Methods: This prospective observational study was conducted among patients treated for TBI in Hospital Kuala Lumpur from January 2007 until December 2007. A total of 294 patients were selected following the inclusion and exclusion criteria; the patients include those with mild, moderate, and severe TBI. A standard performa was used to collect the data.

Results: The patients' age ranged 18–65 years old with mean (SD) of 34.2 (13.0) years old. The median age was 31 years old with a mode of 22 years old (50th centiles at 31 years old and 75th centiles at 43 years old). The majority of the cases were young adult patient. Out of 294 cases, 83.0% ($n = 244$) patients were male and 50 patients 17.0% ($n = 50$) were female, with male to female ratio of 5:1. The subjects comprised mostly Malay ethnicity, 53.4% ($n = 157$), followed by Chinese, 20.8% ($n = 61$), Indians, 14.6% ($n = 43$), and others, 11.2% ($n = 33$). The majority of cases were direct admission from Emergency Department, 57.8% ($n = 170$), followed by referrals from district hospitals, 39.8% ($n = 117$), and others, 2.4% ($n = 7$). Road traffic accident presented as the most common type of injury, 91.5% ($n = 269$), whereas fall presented 6.8% ($n = 20$) and assault cases, 1.7% ($n = 5$). From this study, computed tomography scan of the brain revealed mass lesions in 93.2% of patients ($n = 274$). These lesions include subdural hematoma,

45.6% ($n = 134$), extradural hematoma, 27.9% ($n = 82$), and intraparenchymal/contusion hematoma, 26.5% ($n = 78$). The mean (SD) of Glasgow Coma Scale upon admission was 9.3 (2.5). Most patients suffered severe head injury, 47.6% ($n = 140$), followed by moderately severe head injury, 35.4% ($n = 104$), and mild head injury 17.0% ($n = 50$). Patients subjected for major operation was 82.3% ($n = 242$), minor operation, 6.6% ($n = 19$), and conservative treatment, 11.2% ($n = 33$). The mean (SD) admission blood glucose level was 6.26 (1.30) mmol/L, while for 24 hours post operative, it was 6.64 (1.44) mmol/L. There is only slight increment of mean glucose level to suggest that isolated TBI was the main cause for raise blood sugar level ($P < 0.001$ in analysis of variance). Mild TBI group has a mean (SD) glucose level of 5.04 (0.57) mmol/L, moderate TBI group, 5.78 (0.89) mmol/L, and severe TBI, 7.04 (1.24) mmol/L. There is significant difference of admission glucose level for severe TBI compared with mild and moderate TBI ($P < 0.01$ in independent t test). Mean (SD) admission glucose in isolated TBI patient associated with poor outcome was 6.98 (0.10) mmol/L; however, it was not significant ($P > 0.05$ in independent t test). However, patients with mean (SD) admission glucose of 5.56 (0.88) mmol/L were more likely to have favourable outcome ($P < 0.001$ in independent t test).

Conclusion: This study showed significant differences of blood glucose level in isolated TBI. Mild, moderate, and severe TBI would cause a raise in blood sugar level during admission, and the mean increased according to the severity of isolated TBI. Surgical intervention did not cause any significant changes in the blood glucose level. Isolated TBI with minimal increase of blood sugar level would have favourable outcome.

Supervisor:

Dr Mohammed Saffari Mohammed Haspani

PROSPECTIVE RANDOMIZED CONTROL TRIAL COMPARING METFORMIN AND CLOMIPHENE CITRATE AS OVULATION INDUCTION AGENT IN WOMEN WITH POLYCYSTIC OVARIAN SYNDROME AT ALOR STAR HOSPITAL, MALAYSIA

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MMed (O & G)

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Objectives: The study was design to evaluate the effects of metformin on weight reduction, waist-hip ratio (WHR), menstrual cycle, and ovulation rates among women with polycystic ovarian syndrome and infertility.

Patients and Methods: A total of 115 patients diagnosed with polycystic ovarian syndrome (according to the revised Rotterdam ESHRE/ASRM criteria, 2003) attending Infertility Clinic of Alor Star Hospital were recruited and

later randomized into 3 group: Group A, metformin alone ($n = 38$), Group B, clomiphene citrate alone ($n = 39$), and Group C, combination of metformin and clomiphene citrate ($n = 38$). During the first visit, the WHR of each patient was measured. Baseline levels of serum follicular stimulating hormone, luteinising hormone, testosterone, liver function test, renal function test, and serum prolactin, were evaluated. In Group A, metformin (500 mg tds) was given for a period of 6 months. In Group B, clomiphene citrate (100 mg) was given daily, from day 2 to day 6 of menstruation. The dosage was increased by 50 mg for each cycle should anovulation was noted, to a maximum of 200 mg. In Group C, a combination of metformin and clomiphene citrate were given according to the dosage received by Groups A and B. Ovulation was confirmed by performing transvaginal scan. The evaluation of the WHR and levels of serum follicular stimulating hormone, luteinising hormone, and testosterone was repeated every 3 months.

Results: Metformin has no effects on weight reduction or WHR. Only 9 out of 38 patients (23.7%) who took metformin had ovulation compared with 28 out of 39 patients (71.8%) who took clomiphene citrate. This difference was statistically significant ($P < 0.001$). There was no significant difference in the number of patients who had ovulation between those taking clomiphene citrate alone (28 out of 39 patients, 71.8%) and combination of clomiphene citrate and metformin (26 out of 38 patients, 68.4 %).

Conclusion: Metformin has no effect on weight and WHR reduction. It should not be used to regulate menstrual cycle in patients with polycystic ovarian syndrome. Its usage was not superior to the traditionally used clomiphene citrate in inducing ovulation among patients of polycystic ovarian syndrome with fertility problem, and no additional advantage could be gained if it was combined with clomiphene citrate. Therefore, the current protocol of using clomiphene citrate as the first-line drug in the induction of ovulation among patients with polycystic ovarian syndrome and infertility should remain.

Supervisor:

Associate Prof Adibah Ibrahim

Co-supervisors :

Dr Murizah Md Zain

Dr Mohd Rushdan Md Nor

A STUDY OF DEPRESSION AND/OR ANXIETY AMONG ADULT TYPE 2 DIABETES MELLITUS PATIENTS ATTENDING DIABETIC CENTER, HOSPITAL UNIVERSITI SAINS MALAYSIA

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MMed (Family Medicine)

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Objectives: The study objectives were to determine the prevalence of depression and/or anxiety and their associated factors among patients with diabetes mellitus in USM.

Patients and Methods: This was a cross-sectional study involving 260 Type 2 Diabetes Mellitus adult patients attending the Diabetic Centre, Hospital Universiti Sains Malaysia from November 2007 until March 2008. The patients were interviewed using a set of questionnaires on socio-demographic, family dynamic, and medical history. Screening for depression and anxiety was done using self-administered Hospital Anxiety and Depression Scale. Patients who obtained a score of 9 and above were considered positive for anxiety and depression. They were referred to psychiatrist for further assessment to confirm the diagnosis according to the Diagnostic and Statistical Manual of Mental Disorder (DSM-IV) criteria.

Results: The prevalence of depression was 20.8%, and anxiety, 10.8%. The factors that significantly increase the risk for depression in these patients were working in private sector, receiving income from other family members, cared by children during acute illness, and the presence of diabetic retinopathy as well as diabetic foot ($P < 0.05$ in each). Those who had received secondary and tertiary level of education, satisfied with their income, and had retired had a significantly lower risk for depression ($P < 0.05$ in each). Patients with diabetic foot were significantly more prone to anxiety ($P < 0.05$); in contrast, result showed that males and those with occasionally dominance in family decision-making process were associated with less anxiety ($P < 0.05$ in each).

Conclusion: Prevalence of depression among Type 2 Diabetes Mellitus patients was similar with most studies; however, the prevalence of anxiety was lower in this group of patients. Depression and anxiety risks increased with presence of one or more problems related to occupation, family matters, and the disease complications.

Supervisor:

Dr Azidah Abdul Kadir

Co-supervisors:

Dr Asreneh Abdul Razak

Dr Azriani Abd Rahman

THE EFFECT OF INTRATHECAL BUPIVACAINE VS ROPIVACAINE ON SEDATION REQUIREMENT OF PROPOFOL

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Introduction: Regional anaesthesia with supplementary sedation is often performed for patient's comfort during surgery. Continuous infusion of propofol is a useful sedation method because of the easy management

by titration and rapid emergence. Spinal anaesthesia is known to have the sedative effect and decreases the sedative or anaesthetic dose requirement of general anaesthetics. Therefore, it is possible that after a spinal anaesthesia, even routine doses of sedatives can lead to some unwarranted effects.

Objectives: The study was designed to evaluate whether 2 different types of local anaesthetic (plain bupivacaine and plain ropivacaine) can affect the quality of sedation of propofol during bispectral index (BIS)-guided sedation in lower limb orthopaedic surgery.

Patients and Methods: A double-blind randomized clinical trial was conducted among 70 ASA Grade I and II patients who underwent orthopaedic surgery of the lower limb, with the duration of operation of less than 3 hours. These patients received an intrathecal injection of either 15 mg ropivacaine (3 ml of 0.5% solution) or 15 mg bupivacaine (3 ml of 0.5% solution). 15 minutes after obtaining the appropriate level of spinal anaesthesia, propofol infusion was started at a rate of 6 mg/kg/hr to achieve a BIS level of less than 75 (onset time), then reduced to 3 mg/kg/hr and titrated to maintain the BIS level between 65 and 75. Propofol infusion was stopped at 50th minutes after spinal anaesthesia to measure the time taken to reach a BIS level of 90 (recovery time).

Results: Median anaesthetic level was T4 in the bupivacaine group and T10 in the ropivacaine group. In both the bupivacaine and the ropivacaine groups, the onset times were 243.1 (SD 48.1) seconds versus 269.1 (SD 50.7) seconds ($P < 0.05$), the recovery times were 278.2 (SD 46.8) seconds versus 251.0 (SD 47.5) seconds ($P < 0.05$), the loading doses of propofol were 0.50 (SD 0.09) mg/kg versus 0.54 (SD 0.10) mg/kg ($P < 0.05$), and the maintenance doses were 2.13 (SD 0.38) mg/kg/hr versus 2.40 (SD 0.33) mg/kg/hr ($P < 0.01$), respectively. Haemodynamic variables during sedation period did not show any significant difference between the 2 groups.

Conclusion: Bupivacaine at 15 mg, 0.5% solution was associated with a faster onset time, delayed recovery time, and lower dose of propofol sedation requirement compared with ropivacaine at the same dosage. The height of spinal anaesthesia and potency of local anaesthetic were factors that influenced the requirement of propofol for sedation. Haemodynamic variables in bupivacaine group and ropivacaine group were comparable and did not show significant difference.

Supervisor:

Professor Dr Nik Abdullah Nik Mohamad

FEATURES AND PATHOGENS IN COMMUNITY-ACQUIRED PNEUMONIA

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MMed (Internal Medicine)

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Introduction: Community-acquired pneumonia (CAP) is associated with significant mortality rate. Despite that, the initial treatment is mainly empirical because the precise aetiology is usually unknown at the time of initiating the antibiotic therapy.

Objectives: The objectives of this study were to determine the prevalence and the local pattern of aetiological pathogens causing CAP among hospitalized patients, and to look at the associated risk factors (old age, co-morbidities, and smoking), the severity of CAP at presentation (based on CURB-65 score), as well as the clinical and radiological features with any specific group of pathogens in order to guide for empirical antibiotic therapy and its subsequent management.

Patients and Methods: The cross-sectional study was performed from June 2008 to March 2009 in Hospital Universiti Sains Malaysia. All adults aged 18 years old and above who were admitted to general medical wards for CAP, willing to participate with informed consent, and fulfilled the inclusion criteria were selected. The largest sample size required was 152 samples. Diagnostic microbial specimens that were collected were tested in blood and sputum cultures, serology, viral studies, and sputum acid-fast bacilli (AFB) or tuberculosis (TB) culture. Demographic data, risk factors, clinical and radiological features, CAP severity at presentation, and laboratory results were recorded. Variables obtained were analysed for the prevalence as well as significant associations using chi-square test and logistic regression analysis.

Results: A total of 143 subjects were enrolled in this study. The prevalence of identified pathogens in CAP was $38 \pm 5\%$ (95% CI 30% to 47%). The most commonly isolated pathogens were the Gram-negative bacteria, namely, *Haemophilus influenza* (6.3%) and *Klebsiella* spp. (6.3%), including *Klebsiella pneumoniae*. *Mycobacterium tuberculosis* was found in 6.3% of samples. Multivariate analysis revealed that antibiotic therapy given prior to the test reduced the ability to correctly identify the pathogens ($P = 0.040$, OR = 0.42). Underlying bronchiectases ($P = 0.026$, OR = 4.19) or presence of alveolar infiltrates ($P = 0.045$, OR = 3.54) were significantly associated with identified pathogens. Presence of purulent sputum ($P = 0.001$, OR = 9.43) or underlying bronchiectases ($P = 0.005$, OR = 6.73) were associated with Gram-negative bacteria. Diabetes mellitus ($P = 0.013$, OR 8.53) and cavitation on chest radiograph ($P = 0.003$, OR = 19.32) were associated with *Mycobacterium tuberculosis*. Univariate analysis on Gram-positive pathogens showed its association with only fever of more than 38.5°C ($P = 0.014$). Blood culture were more likely to be positive in the presence of fever of more than 38.5°C ($P < 0.001$), haemodynamic instability with systolic blood pressure of less than 90 mmHg and diastolic blood pressure of 60 mmHg and less ($P = 0.002$, OR = 15.50), or underlying diabetes mellitus ($P = 0.047$, OR 5.81). Presence of purulent sputum ($P = 0.024$, OR 3.47) or underlying bronchiectases ($P = 0.030$, OR = 4.46) were associated with positive sputum culture. Subjective feeling of breathlessness were less likely to be associated with identified pathogens ($P = 0.012$, OR = 0.35) or Gram-negative

pathogens ($P = 0.030$, OR = 0.321). There was no significant association between old age (more than 60 years old), current cigarette smoking status, or severity of CAP on admission with any specific group of pathogens ($P > 0.05$). Atypical pathogens were not associated with any factors or features.

Conclusion: The prevalence of identified pathogens in our study was within the expected range. Gram-negative bacteria were the most common pathogens identified; this was similar to a previous local study. *Mycobacterium tuberculosis* was not an uncommon cause of CAP. Certain factors and clinical presentation of CAP were associated with specific group of pathogens. Prescription of empirical antibiotic therapy that covers Gram-negative pathogens as well as further investigation to look for tuberculosis in high risk patients are recommended.

Supervisor:

Associate Prof Che Wan Aminud-din Hashim

Co-supervisors:

Dr Shaharudin Abdullah

Dr Siti Suraiya

THE ASSOCIATION STUDY BETWEEN MAGNETIC RESONANCE IMAGING (MRI) AND PERCUTANEOUS TRANSPEDICULAR BIOPSY (HPE) FINDINGS IN VERTEBRAL LESIONS

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MMed (Orthopaedics)

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Introduction: Magnetic resonance imaging (MRI) has become the instrument of choice for disease detection in spine pathology. More recent reports have questioned the specificity of MRI detection and concluded that signal intensity change alone is not diagnostic of a metastatic lesions. The introduction of percutaneous biopsy has substantially benefited the diagnosis of skeletal diseases. It avoids the need for open surgical biopsy in most patients. Percutaneous transpedicular biopsy for vertebral lesions can be performed with minimal morbidity and good diagnostic yield with accuracy of up to 92% in bone metastases.

Objectives: The main objective of this study was to determine the sensitivity and specificity of MRI in the diagnosis of a vertebral spinal lesions, specifically in vertebral tuberculosis and metastases. The association between MRI and transpedicularbiopsy (histopathological) findings was to be studied. The secondary objective was to determine the correlation of transpedicularbiopsy done under C-arm fluoroscopy with respect to major influencing variables such as spinal level, tissue type (lytic and sclerotic), and ultimate histopathological examination (HPE).

Patients and Methods: In this retrospective case-series study, 72 patients admitted to the Department of Orthopaedic in Hospital Kuala Lumpur and Hospital Universiti Sains Malaysia between January 2002 and December 2007 were reviewed. All patients with suspected case of metastases, tuberculosis, and pyogenic disease (based on their clinical sign, symptoms, and X-ray findings involving spinal vertebra) who underwent MRI and percutaneous transpedicular biopsy were included in the study. The data collected were reviewed, including all data pertaining to laboratory investigations to support clinical diagnosis, i.e., full blood count (FBC), erythrocyte sedimentation rate (ESR), tumour marker, sputum acid-fast bacilli (AFB), Mantoux test, and polymerase chain reaction (PCR) analysis. In addition, the MRI findings of each case reported by the radiologist and the HPE results from tissues taken through percutaneous transpedicular biopsies (which were performed later to MRI) were also examined. The data were analyzed for association between the different diagnostic assessments.

Results: The overall HPE diagnoses obtained through a percutaneous transpedicular biopsy were 65.3% positive (47 out of 72 cases). And 34.7% negative (25 out of 72 cases) for both vertebral tuberculosis and metastases, while the overall disease detection by MRI was 97.2% (70 out of 72 cases). There was no significant association between MRI findings and percutaneous transpedicular biopsy (HPE) for disease detection ($P > 0.05$). The disease prevalence was 0.653 for diagnosis via percutaneous transpedicular biopsy (95% CI 0.543-0.763), and 0.972 for MRI (95% CI 0.934-1.011). The sensitivity and specificity of MRI compared with percutaneous transpedicular biopsy, which was taken as the gold standard in this study, which were 0.979 (95% CI 0.937-1.020) and 0.040 (95% CI 0.018-0.062), respectively. There was a significant association observed between the level of vertebral lesion and HPE by percutaneous transpedicular biopsy ($P = 0.021$); however, HPE is not significantly associated with the types of tissue in the vertebral body lesion ($P > 0.05$).

Conclusion: MRI is highly sensitive for disease detection in vertebral lesion. However, MRI has low specificity and is not reliable in detecting true negative cases. There is no significant association between MRI and percutaneous transpedicular biopsy with regards to disease detection. For inconclusive MRI findings or MRI findings with vertebral metastases and tuberculosis, percutaneous transpedicular biopsy clinically useful and reliable for vertebral disease confirmation.

Supervisor :
Associate Prof Mohd Iskandar Mohd Amin

24-HOUR AMBULATORY BLOOD PRESSURE MONITORING AMONG HYPERTENSIVE PATIENTS ATTENDING FAMILY MEDICINE CLINIC, HOSPITAL UNIVERSITI SAINS MALAYSIA, KELANTAN

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MMed (Family Medicine)

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Introduction: Hypertension is a common and an important, modifiable risk factor for cardiovascular, cerebrovascular, and renal diseases. Although the percentage of patients who are being treated for hypertension has increased, the percentage of those who demonstrate control of blood pressure (BP) has declined. Clinicians increasingly rely on ambulatory BP monitoring (ABPM) to improve the diagnosis and treatment of hypertension, as there is a firm evidence of its prognostic value in predicting cardiovascular outcome.

Objectives: The objectives of this study were to illustrate the circadian BP profile of hypertensive patients attending Family Medicine Clinic, Hospital Universiti Sains Malaysia (HUSM), to describe the prevalence of uncontrolled hypertension based on 24-hour ambulatory BP monitoring (ABPM) and office BP, and to identify the associated cardiovascular risk factors among dippers and non-dippers.

Patients and Methods: This cross-sectional study was conducted from 1 January 2008 to 30 June 2008 among hypertensive patients attending Family Medicine Clinic, HUSM. All patients who fulfilled the inclusion criteria were selected via systematic random sampling. Schiller BR-102 plus was put on patients to get 24-hour BP reading. Mean of 2 office BPs were also taken. Non-dippers were defined as systolic or diastolic nocturnal drop of less than 10%. Statistical analyses were done using SPSS version 12.

Results: A total of 105 patients were recruited: 59 (56.2 %) males and 46 (43.8%) females with a mean age of 51.8 (SD 9.34) years old. The patients' mean 24-hour SBP and DBP were 128.4 (SD 12.7) mmHg and 79.7 (SD 8.74) mmHg, respectively. The mean daytime SBP and DBP were 132.1 (SD 11.72) mmHg and 82.4 (SD 9.41) mmHg, while the mean nighttime SBP and DBP were 123.3 (SD 12.78) mmHg and 76.2 (SD 9.01) mmHg, respectively. Percentages of non-dippers were 68.6% for systolic and 61.9% for diastolic BP. Percentages of uncontrolled systolic and diastolic 24-hour ambulatory BP were 26.7% and 23.8%, respectively, and the percentage of uncontrolled diastolic nighttime BP was 56.2%. Percentages of uncontrolled office BP was high, 57.1% systolic and 61.0% diastolic, and the difference between office BP and 24-hour ambulatory BP were statistically significant. However, the simple logistic regression analysis performed to determine the relationship between cardiovascular risk factor and non-dippers were not significant.

Conclusion: The means for 24-hour and daytime ambulatory BP were normal; however, the mean diastolic nighttime was above normal value. The majority of patients were categorised as non-dippers. The percentage of uncontrolled office BP was high compared with 24-hour ambulatory BP. Therefore, rather than using simple clinical measurements, ambulatory BP was clinically and practically important to get a better understanding of BP fluctuations over 24-hour periods.

Supervisor:

Dr Juwita Shaaban

Co-supervisors:

Dr Harny Mohamad Yusoff

Dr Tengku Alina Tengku Ismail

CLINICAL CHARACTERISTICS AND HOSPITAL COST OF HOSPITALIZED CHILDREN WITH RESPIRATORY SYNCYTIAL VIRUS INFECTION IN HOSPITAL UNIVERSITI SAINS MALAYSIA, KUBANG KERIAN

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MMed (Paediatrics)

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Introduction: Insertion RSV is a major pathogen for respiratory illness in children less than 2 years of age, causing significant morbidity and mortality, especially in those with underlying disease. RSV infection shows a seasonal variation in its yearly distribution, and it imposes a substantial burden to the health care provider. In the East Coast of Malaysia, there has been no study reporting the medical cost incurred by the hospital in managing patients with RSV infection.

Objectives: This study aimed to describe the epidemiological characteristics, clinical profile, and seasonal trends of infection, and to determine the direct medical cost in managing hospitalized children with RSV infection in Hospital Universiti Sains Malaysia (HUSM) from 2006 to 2008.

Patients and Methods: This was a cross-sectional retrospective study conducted at HUSM, Kubang Kerian, Kelantan. Data of children admitted to wards 6S, Neonatal Intensive Care and High Dependency Unit with positive RSV respiratory specimens from the Laboratory of Virology in Department of Microbiology and Parasitology from 1 January 2006 until 31 December 2008 were collected. Medical charts were reviewed retrospectively. The epidemiological and clinical profiles were obtained from the medical records. Seasonal variations were determined by analyzing the monthly RSV-positive isolation rate and comparing with local meteorological parameters. The direct medical cost was calculated by using raw data of various costing derived from the various departments in HUSM.

Results: There were 155 positive cases from 2006 to 2008. However, only 131 cases were included as the medical records for the remaining 24 cases could not be traced. Bronchopneumonia was the predominant diagnosis (60.3%), followed by acute bronchiolitis (26.0%). From 131 patients, 23 patients (17.6%) had underlying diseases, with congenital heart disease being the most common condition, occurring in 13 patients (9.9%). The patients were older (11 vs five months, $P < 0.05$), had a longer length of stay (17 vs 8 days, $P < 0.01$), and 10 times higher risk for ventilation ($P < 0.001$). The mortality rate was 3.8%, all involving those with underlying diseases.

Patients who were younger than six months of age required more intensive care admission (19% vs 1.5%, $P < 0.001$) and oxygen therapy (48.9% vs 31.3%, $P < 0.05$). On the contrary, they required less bronchodilator therapy (64.9% vs 86.0%, $P < 0.01$) and less of them presented with fever (74.3% vs 96.5%, $P < 0.001$). Apnoea was a common atypical presentation in neonates. The significant risk factors for ventilation were previous underlying diseases ($P < 0.001$) and age younger than 6 months ($P < 0.01$). RSV infection distribution patterns had changed from previous trends, but still maintaining its peak during the North-East monsoon from October to December. The mean direct medical cost for all patients was estimated at RM 74 301.66 per annum. The mean cost per patients for those with underlying diseases was higher than those without diseases (RM 2624.30 vs RM 1505.00).

Conclusion: RSV infection is associated with significant morbidity and mortality in children with underlying diseases. The seasonality of RSV infection in Kelantan showed an association with the rainfall distribution, with its peak during the rainy season (October-December). The economic burden of RSV infection to the health care provider was significant, and this was even more so for those with underlying diseases, especially congenital heart disease.

Co-supervisor :

Dr Noraida Binti Ramli

Co-supervisor :

Dr Mohd Ismail Bin Ibrahim

PERCEIVED STIGMA AMONG PATIENTS WITH SCHIZOPHRENIA IN KELANTAN

Dr Suria Binti Husin
MMed (Psychiatry)

Department of Psychiatry

School of Medical Sciences, Universiti Sains Malaysia Health Campus, 16150 Kelantan, Malaysia

Introduction: Stigma has been identified and recognized as a major concern in healthcare services. Stigma is manifested by bias, distrust, stereotyping, fear, embarrassment, anger, and avoidance; it leads the society to avoid living, socializing, or working with, renting to, or employing people with mental disorders. Although perceived stigma in schizophrenia is a known fact, it has not been widely studied in Malaysia.

Objectives: The aims of the study were to determine the distribution of perceived stigma toward patients with schizophrenia and its association with self-esteem, clinical factors, and socio-demographic variables.

Patients and Methods: This was a cross sectional study conducted in Hospital Raja Perempuan Zainab II and Hospital Universiti Sains Malaysia from September 2008 to March 2009. The subjects consisted of 227 stable patients with schizophrenia according to the definition of the Diagnostic and

Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), selected through convenience sampling. The perceived stigma and self-esteem were assessed with the Devaluation and Discrimination Scale (DDS) and the Shamsunnisah Self-Esteem Scale (SSES), respectively. The psychopathology was assessed with the Brief Psychiatric Rating Scale (BPRS). The main measured outcome in this study was the mean stigma score of the DDS, which is considered as a dependent variable. Descriptive analysis, simple linear regression, and analysis of variance (ANOVA) were applied in data analyses.

Results: The majority of the patients were Malays, 223 (98.2%); male, 151 (66.5%); single, 142 (62.6%); unemployed, 129 (56.8%); and had mild or doubtful symptoms on BPRS psychotic sub scale, 136 (59.9%). The mean duration of illness was 11.6 (SD 8.1) years. The mean stigma score was 2.38 (SD 0.67), with a majority of 132 patients (58.1%) scoring lower than the mid-score, which indicated low level of perceived stigma. A majority of 131 patients (57.7%) had a moderate levels of self-esteem, with a mean score of 91.4 (SD 14.5). There was a significant difference in the mean stigma score between the three levels of self-esteem ($P < 0.001$). Other socio-demographic and clinical factors were not significantly associated with a perceived stigma.

Conclusion: This study found that perceived stigma was low among patients with stable schizophrenia. The perceived stigma was significantly associated with the level of self-esteem, where subjects with a high level of perceived stigma tended to have a low level of self-esteem.

Supervisor:

Professor Dr Haji Mohd Razali Bin Salleh

Co-supervisor:

Dr Mohd Nawan Hamzah

RETROSPECTIVE CROSS-SECTIONAL STUDY FOR COMPLETENESS OF PRE-OPERATIVE SECTION OF ANAESTHETIC RECORD IN HOSPITAL UNIVERSITI SAINS MALAYSIA

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MMed (Anaesthesiology)

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Introduction: The pre-operative section of the anaesthetic form is the main concern in this study. Proper pre-operative assessment is very important, and this is also true for the documentation of pre-operative assessment in the anaesthetic form for patients who will undergo any type of anaesthesia.

Objective: This study was done to assess the difference in the quality of completing the pre-operative section of the anaesthetic form between emergency and elective operations, as well as between anaesthetic records in January 2008 and

May 2007.

Patients and Methods: This retrospective cross-sectional study was conducted from May 2007 to January 2008 in Hospital Universiti Sains Malaysia (HUSM). Patients' names and identification numbers were traced from the operation theatre records, and patients were selected according to the inclusion criteria. Selected patients' medical records were obtained from the record office. Anaesthetic records were assessed. The completeness of 22 variables was evaluated based on their respective criteria, and the global quality index (percentage of completeness) was scored. SPSS version 12 was used for data tabulation and analyses.

Results: There were 325 anaesthetic records traced and evaluated. The mean percentage of completeness of all the anaesthetic records in the pre-operative section was 67.98%. For anaesthetic records in January 2008, the mean percentage of completeness was 73.1%; whereas, in May 2007, it was 62.3%. For anaesthetic records from elective operations, the mean percentage of completeness was 74.55%; in contrast, mean for anaesthetic records from emergency operations was 64.38%.

Conclusion: Although the form-completeness is improving (as seen in the higher percentage of completeness in January 2008 compared with May 2007), important measures are needed to further improve the quality of completing the pre-operative segment of the anaesthetic form in HUSM.

Supervisor :

Associate Professor Dr Wan Hashim Wan Adnan

A DIAGNOSTIC VALUE OF MANTOUX TEST IN TUBERCULOSIS: A CASE CONTROL STUDY IN HOSPITAL UNIVERSITI SAINS MALAYSIA IN 2009

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MMed (Internal Medicine)

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Introduction: The prevalence of tuberculosis (TB) is increasing despite aggressive strategies and control programmes exercised. Although new methods had been introduced to diagnose TB, these tests are expensive and not widely available. Mantoux test remains important in developing countries, especially in extra-pulmonary, pediatric, and smear-negative cases. However, its accuracy in the diagnosis of active TB remains uncertain.

Objectives: This study aimed to determine Mantoux test diagnostic accuracy and the best cut-off points of positive Mantoux, as well as to identify the associated factors that influence Mantoux induration among TB patients.

Patients and Methods: Case-control design was used for diagnostic study, and cross-sectional study using

confirmed activeTB was applied to identify the associated factors of Mantoux reading. A total of 140 subjects were involved, including 50 cases of activeTB and 90 subjects in the control group. Control was defined as those who had never been exposed to or diagnosed with TB in the past. TB cases were retrieved from Chest Clinic, Hospital Universiti Sains Malaysia (HUSM) from 1 January 2008 until 31 March 2009, and the control subjects were chosen from around Kota Bharu, the capital of Kelantan. The patients' folder and TB wallet were reviewed by the researcher. The required information on demography, Mantoux result, and other related parameters were recorded into the data collection form.

Results: Based on the diagnostic study, three cut-off points showed comparable results. The sensitivity of 8, 10, and 12 mm cut-off points were 72%, 66%, and 50%, respectively. Among these cut off points, 12 mm induration showed greater specificity and positive predictive value rate, 96% and 86%, respectively. In contrast, 10 mm induration was observed to be the best cut-off point based on a receiver operating characteristic (ROC) curve. Multivariable logistic regression analysis showed no association between Mantoux size and factors such as gender, race, Bacille Calmette-Guerin (BCG) vaccination, co-morbidities, degree of TB involvement as reflected by sputum smear positivity, and radiological involvement.

Conclusion: It is concluded that, in population of high TB burden, Mantoux test is fairly sensitive and specific in the diagnosis of TB. The analysis showed that 10 mm induration was the best cut-off points of positive Mantoux test. However, 12 mm induration should be reconsidered as the best cut-off points due to its greater specificity and positive predictive values. There is no association between Mantoux size and confounding factors such as age, BCG vaccination, gender, co-morbidities, and degree of TB involvement.

Supervisor :

Associate Professor Dr Che Wan Aminuddin

Co-supervisor:

Dr Shaharuddin Bin Abdullah

RISK PERCEPTION ON FOOD POISONING AMONG COMMUNITY IN SALOR, KOTA BHARU, KELANTAN

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MMed (Environmental Health)

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School of Medical Sciences, Universiti Sains Malaysia
Health Campus, 16150 Kelantan, Malaysia*

Introduction: Food poisoning is the most common infectious disease that has come to the public health attention in Malaysia. In a 2003 survey, typhoid, cholera, and food poisoning were considered as endemic diseases in Kelantan.

Objectives: This study aimed to explore the knowledge, attitude, and practice (KAP), as well as to determine the risk

perception and socio-demographic factors associated with the risk perception on food poisoning in Salor, Kota Bharu, Kelantan.

Patients and Methods: A cross-sectional study was conducted in Salor from June to September 2008. A total of 447 members of the community were selected for the study using enumeration block sampling. Data were collected using a self-administered, validated questionnaire, which consisted of information on socio-demography, KAP, and risk perception on food poisoning.

Results: The majority of the respondents were Malays (99.3%), married (81.4%), and females (57.5%), with the mean (SD) age of 38.1 (12.58) years old. Most of the respondents had good knowledge (71.1%), positive attitude (88.4%), and positive practices (87.2%) towards food poisoning. Majority of the respondents had perceived risk of food poisoning. However, respondents' perceived risk of food poisoning (64.7%) was better than perceived severity of food poisoning (37.1%). The significant factors associated with the risk perception on food poisoning were female (OR = 1.91, 95% CI 1.26 to 2.91, $P = 0.003$) and higher household income (OR = 2.48, 95% CI 1.13 to 5.47, $P = 0.024$). Age, marital status, and education level were not associated with the risk perception on food poisoning.

Conclusion: Data from the study showed that the community in Salor had high percentage of good KAP and risk perception on food poisoning. However, in a detailed assessment of KAP, it was demonstrated that there were deficit areas that should be addressed in the health education program. Better risk perception among females and high-income group indicated showed that these people were more aware and interested in the food safety issues.

Supervisor :

Dr Nor Azwany Yaacob

Co-supervisor:

Dr Zaliha Ismail

Dr Zaharah Sulaiman

FACTORS INFLUENCING QUALITY OF LIFE IN PATIENTS WITH HUMAN IMMUNODEFICIENCY VIRUS (HIV) INFECTION

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Introduction: The availability and efficacy of medical treatment have delayed disease progression and prolonged the survival in patients with human immunodeficiency virus infection and acquired immunodeficiency syndrome (HIV/AIDS). Consequently, the quality of life (QOL) has emerged a significant medical outcome measure for people living with

HIV/AIDS.

Objectives: The aim of this study was to determine the socio-demographic, clinical, psychological, and spiritual factors influencing quality of life (QOL) in patients with HIV/AIDS.

Patients and Methods: This cross-sectional study was conducted using convenience-sampling method. The study population consisted of 271 patients with HIV/AIDS from April 2008 to March 2009. These patients completed the Malay-version of the Functional Assessment of HIV Infection (FAHI) and the Spiritual Well-being (SpWB) Scale. Statistical analyses were performed using SPSS version 12.0. Multivariable linear regression analyses were performed using socio-demographic, clinical, spiritual, and psychological factors as the independent variables. The total FAHI score and 5 domains or subscales from FAHI, such as the physical well-being, social well-being, and cognitive functioning, were analysed as the dependent variables.

Results: The mean (SD) of FAHI total score was 113.03 (29.08) and it ranged 0–176, with higher score indicating better QOL. The most affected domain was social well-being. Patients who were non-Malays, employed, had CD4⁺ count of more than 200, and not having anxiety or depression had better overall QOL. Lower educational level, longer duration of illness, low CD4⁺ count, anaemia, and possible anxiety and depression seemed to compromise the patients' physical well-being. Those of older age, Muslim, and having possible anxiety and depression had a poorer emotional well-being. Those who were employed, had no anxiety or depression, and had higher spirituality level significantly showed better functional and global well-being. Older patients, those of heterosexual source of infection, possible anxiety and depression, as well as poor spirituality were significantly associated with poorer social well-being. In addition, 65% of male patients did not disclose their HIV status, and non-disclosure was also significantly associated with poorer social well-being. Being unemployed, with possible anxiety and depression, and weaker spirituality showed significant association with lower cognitive functioning.

Conclusion: This study showed differential effects on the different domains of QOL of patients with HIV and AIDS. The worst impaired domain was the patients' social well-being. The high percentage of male patients failing to disclose their HIV status to their significant others and the fact that women were being infected via heterosexual relationship (and seemed to suffer more impairment) should be addressed with a better primary prevention and management approaches. It appears that the HIV/AIDS requires the sufferers to stop being silent, and the caregivers as well as the policy makers to be more vocal in order to curb this epidemic.

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ANTI-TUBERCULOSIS DRUG-INDUCED HEPATITIS: OUTCOME OF ANTI-TUBERCULOSIS DRUG RE-CHALLENGE IN HOSPITAL UNIVERSITI SAINS MALAYSIA

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Objective: The study was conducted to determine the outcome of a re-challenge of anti-tuberculosis drugs in patients with anti-tuberculosis drug-induced hepatitis.

Patients and Methods: This was a single-centre, retrospective study conducted in Hospital Universiti Sains Malaysia from January 2006 until December 2008. The medical records of patients with tuberculosis were examined to determine the durations of developing anti-tuberculosis drug-induced hepatitis and its resolution.

Results: Only 22 out of 595 tuberculosis patients were included in the study. The review showed that 31.8% of the patients developed anti-tuberculosis drug-hepatitis in week 2, and another 22.7% in week 3. Resolution of the drug-induced hepatitis occurred during week 1 after the cessation of anti-tuberculosis drugs in 22.7% of patients, and another 31.8% recovered during week 2. All the patients could tolerate the first-line anti-tuberculosis drug regime during the re-challenge period.

Conclusion: Anti-tuberculosis drug-induced hepatitis usually occurred in week 2 or 3 after the initiation of anti-tuberculosis drug treatment and usually resolved within two weeks after cessation of the drugs.

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