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Abu Bakar S, Mak JW. Research ethics, governance, oversight and public interest. *IeJSME* 2008; 2 (Suppl 1): S35-S38

Research ethics, governance, oversight and public interest

Abu Bakar Suleiman, Joon-Wah Mak

International Medical University, Kuala Lumpur, Malaysia

Abstract

A better educated public has started to challenge the way decisions are made in medical research activities. Although Institutional and National Guidelines on Research are in place, there are fears that Institutional Review Boards (IRBs) and funding agencies are only fairly active in scientific and ethical reviews of research proposals but not on oversight of projects after their initiation. These issues are integral to good research governance and researchers and custodians of research ethics must ensure that public interest is not compromised. Medical progress is based on research including human experimentation carried out according to guiding principles as enunciated in the Declaration of Helsinki (2000), but the quality of compliance with the Declaration is an important issue. Better choice and appropriate training of members of IRBs to improve the quality of decision making and governance processes are urgently needed. Competency in evaluation of proposals requires not only the appropriate scientific knowledge but also access to relevant preclinical and other data. Unfortunately, the completeness and quality of such data may not be adequate. Public interest demands that injury to trial subjects in clinical trials is minimized if not avoided completely. Unfortunately this is not always possible with trials where novel biological modes of action are tested. A more robust evaluation mechanism for project approval may minimize but not completely avoid injury to subjects; thus insurance cover to provide care and compensation to subjects must be compulsory. The decision to approve or reject a project must be based on the balance of potential risks and benefits, taking into consideration justifiable distributive risks to target communities and populations. Economic considerations should never be the primary focus, especially when there are real concerns that the migration of early phase clinical trials including vaccine trials to developing countries is based on the perceived less stringent ethical requirements and oversight there.

Key words: Declaration of Helsinki, ethics, Institutional Review Boards, research governance, research oversight

Achike FI. The L-arginine-nitric oxide pathway: a potential therapeutic target in dengue haemorrhagic fever. Clin Exp Pharmacol Physiol 2008; 35: 1135-1136

The L-arginine-nitric oxide pathway: a potential therapeutic target in dengue haemorrhagic fever

Francis I Achike

Clinical Sciences Section, International Medical University, Kuala Lumpur, Malaysia

Abstract

The L-arginine–nitric oxide (NO) pathway modulates both normal and pathobiology in various cells, including neuronal and vascular endothelial cells, where nanomolar concentrations of NO are constitutively generated under the influence of neuronal (n) and endothelial (e) nitric oxide synthase (NOS), respectively. The inducible isoform of NOS (iNOS), triggered by inflammatory cytokines, generates micromolar levels of NO that modulate various pathophysiological processes. In this issue of the journal, Mendes Ribeiro et al. have implicated the L-arginine–NO pathway in the pathophysiology of dengue haemorrhagic fever/dengue shock syndrome (DHF/DSS). Dengue fever is an arthropod-borne viral infection prevalent in the tropics, where the principal (*Aedes aegypti*) and occasional (*Aedes albopictus*) vectors thrive. All four serotypes of the dengue virus (DENV 1-4) belong to the *Flavivirus* genus of the family *Flaviviridae*, with genetic evidence of common ancestry from a subhuman primate infection. They present similar clinical spectra ranging from the symptomless to the classical symptomatic (fever, cephalgia, arthralgia, myalgia and gastrointestinal disturbances) dengue infection. In extreme conditions, DHF/DSS ensues, associated with thrombocytopenia, deranged haemostasis, vascular leakage, haemorrhagic shock and significant mortality. The pathophysiology of DHF/DSS remains unclear, although an immunological hypothesis currently dominates. This hypothesis is based on studies of secondary infections with serotypes that activate cross-reactive memory T cells, which trigger inflammatory cytokines to levels that correlate well with clinical severity. A major weakness of this hypothesis is its failure to account for DHF/DSS following primary dengue infection in infants. Also unaccounted for are the hallmark symptoms of sudden vascular permeability, failure of platelet function and coagulopathy. Increased vascular leakage has been attributed to a dysfunctional endothelial surface glycocalyx, viral infection of endothelial cells and the release by infected monocytes and lymphocytes of proteins that incapacitate vascular endothelial cell tight junctions. Reduced intravascular oncotic pressure, a consequence of hypoproteinaemia from DENV-induced liver cell damage, possibly contributes to vascular leakage, whereas suppression of bone marrow and peripheral blood platelets may explain the thrombocytopenia. Normal platelet homeostasis involves anti-aggregatory NO and pro-aggregatory thromboxane (TX) A₂. Mendes-Ribiero et al. observed increased NO activity, consistent with the anti-aggregatory and haemorrhagic tendency in DHF/DSS. They also observed a reduced collagen dose-dependent aggregation of platelets from dengue-infected patients compared with uninfected controls, thus establishing an association between reduced platelet aggregation, enhancement of the L-arginine-NO pathway and dengue fever. This novel observation raises the possibility for therapeutic targeting of the L-arginine-NO pathway in DHF/DSS. Clinical bleeding in DHF/DSS does not necessarily correlate with platelet counts, calling for studies on possible correlations with NO or TXA₂. In the study of Mendes-Ribiero et al., the subjects did not bleed, but exhibited platelet characteristics of haemorrhage. This suggests a pathophysiology of increasing complexity requiring a final haemorrhagic trigger, perhaps iNOS-mediated and coupled

to factors that regulate vascular leakage. The authors did not indicate the NOS isozyme involved in the enhanced NO activity, thus precluding speculation on which isozyme inhibitor should be studied for therapeutic purposes. Interestingly, the non-specific enzyme inhibitors NG-nitro-L-arginine methyl ester and NG-monomethyl-L-arginine are known to enhance platelet aggregation in both in vivo and in vitro models. In conclusion, although the pathophysiology of DHF/DSS remains unclear, the possible role of an enhanced L-arginine-NO pathway has been established, raising the feasibility of antidengue drugs that target this arm of the platelet homeostatic mechanism.

Alexander D, J Clarkson, R Buchanan, G Chadwick, R Chesters, C L Drisko, CW Douglass, L Farrell, K Fletcher, F Makoni, M Monaco, B Nordquist, NI Park, S Riggs, , L Schou, FC Smales, JW Stamm, Toh CG, T Volpe, P Ward, P Warren. Exploring opportunities for collaboration between the corporate sector and the dental education community. Eur J Dental Edu 2008; 12 Suppl 1: 64-73

Exploring opportunities for collaboration between the corporate sector and the dental education community

D. Alexander^{1*}, J. Clarkson², R. Buchanan³, G. Chadwick⁴, R. Chesters⁵, C. L. Drisko⁶, C.W. Douglass⁷, L. Farrell⁸, K. Fletcher⁸, F. Makoni⁹, M. Monaco¹⁰, B. Nordquist¹¹, N. I. Park¹², S. Riggs¹³, L. Schou¹⁴, F. C. Smales¹⁵, J. W. Stamm¹⁶, C. G. Toh¹⁷, T. Volpe¹⁸, P. Ward¹⁹ and P. Warren²⁰

¹ GlaxoSmithKline, NJ, USA,

² Trinity College, Dublin, Ireland,

³ University of Buffalo, New York, NY, USA,

⁴ East Carolina University, Greenville, NC, USA,

⁵ Colgate-Palmolive, Geneva, Switzerland,

⁶ Medical College of Georgia, Augusta, GA, USA,

⁷ Harvard School of Dental Medicine, Boston, MA, USA,

⁸ Sunstar Americas, Chicago, IL, USA,

⁹ University of Zimbabwe, Harare, Zimbabwe,

¹⁰ Johnson & Johnson, NJ, USA,

¹¹ Discus Dental, NJ, USA,

¹² Nobel Biocare, FL, USA,

¹³ Delta Dental Plan of Minnesota, Minneapolis, MN, USA,

¹⁴ University of Copenhagen, Copenhagen, Denmark,

¹⁵ Asian Institute of Medicine, Science and Technology, Kuala Lumpur, Malaysia,

¹⁶ University of North Carolina at Chapel Hill, Chapel Hill, NC, USA,

¹⁷ International Medical University, Kuala Lumpur, Malaysia,

¹⁸ Colgate-Palmolive, NJ, USA,

¹⁹ British Dental Association, London, UK,

²⁰ Procter and Gamble, Mason, OH, USA

Abstract

The ultimate purpose of both dental industry and dental education is to improve the oral health of the public. This report provides background information on the different roles and objectives of the dental industry and dental education communities, the different operating environment of each sector and also areas of common interest where collaboration will be of mutual benefit. The report addresses five areas for potential collaboration between the dental industry and the dental education communities:

1. Contribution to joint activities.
 2. Effectiveness and efficiency.
 3. Workforce needs.
 4. Middle- and low-income countries.
 5. The future of International Federation of Dental Educators and Associations (IFDEA).
- The traditional areas of support and their limitations that have been provided by industry are outlined in the report and some new approaches for collaboration are considered. Industry-based research has been an important factor in developing new products and technologies and in promoting oral health. However there is a need to facilitate the introduction of these developments at an early stage in the education process. Industry has to operate in an efficient manner to remain competitive and maximize its returns and

therefore survive. The academic sector operates in a different environment and under different governance structures; although some trends are noted towards adoption of greater efficiency and financial accountability similar to industry. Opportunities to jointly develop best business practices should be explored. Industry has responded well to the oral health needs of the public through the development of new products and technologies. The education community needs to respond in a similar way by examining different healthcare delivery models worldwide and developing programmes to train members of the dental team to cater for future needs and demands of communities in different regions of the world. The reputation of industry-based scientists and clinicians is high, and their role in contributing to the dental education process in practical ways needs to be explored and further developed. Closer relationships between industry scientists and faculty and students could assist industry's need and desire to develop new technologies for the broader dental care system. The corporate sector can play a key role in the future success of IFDEA by providing support and expertise in developing areas such as regional leadership institutes, a Global Faculty and Network and in collaborating in developing continuing education programmes as well as involvement in its governance. Thirteen recommendations are made in the report. These are considered to be important initial steps in developing the already strong relationship between the education and corporate sectors. Partnership and collaborating more effectively along the lines suggested should, almost certainly, generate mutually beneficial outcomes, whilst serving over the long term to elevate the public's oral health status on a global basis.

Key words: dental industry; dental education; collaboration; partnerships; International Federation of Dental Educators and Associations.

Ambu S, Chu WL, Mak JW, Wong SF, Chan LL, Wong ST. Environmental health and building related illnesses. *leJSME* 2008; 2 (Suppl 1): S11-S18

Environmental health and building related illnesses

Stephen Ambu, Wan-Loy Chu, Joon-Wah Mak, Shew-Fung Wong, Li-Li Chan, Siew-Tung Wong

International Medical University Bukit Jalil, 57000 Kuala Lumpur, Malaysia

Abstract

Malaysia has good environmental laws to protect the outdoor environment and public health. However there are no laws governing indoor air quality (IAQ) and the knowledge among the public about its importance is also lacking. Environmental professionals think it is not a priority and this influences the policy decisions in the country. Therefore there is a need to create awareness by way of research, education and other promotional activities. What is much needed at this time is the establishment of standards for the conduct of risk assessment studies. To establish standards we need reliable data which can be used to develop appropriate guidelines for the purpose of mitigation and adaptation programmes. IAQ can have significant influence on health resulting in drop in productivity and economy of a country. It has been estimated that in the US, building related illnesses (BRI) symptoms have a relationship with decrease (3 to 5%) in work performance in an affected population resulting in an annual loss of US\$60 billion in revenue. However, based on efficient management programmes they have also projected that the potential annual savings can be in the region of US\$10 to 30 billion. This establishes that fact that good management programmes based on efficient guidelines is of economic value to a country and wellbeing of the population. The IMU has embarked on a research programme to collect the much-needed data for the framing of a good IAQ guideline for Malaysia.

Key words: Indoor air quality, health

Anwar M, Sulaiman SAS. Evaluation of the management of sexually transmitted infections (STIs) by private practitioners in Pulau Pinang, Malaysia. *Malaysian J Med Sci* 2008; 15 (4): 40 - 46

Evaluation of the management of sexually transmitted infections by private practitioners in Pulau Pinang, Malaysia

Mudassir Anwar and Syed Azhar Syed Sulaiman*

Department of Pharmacy, International Medical University, Plaza Komanwel, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

*School of Pharmaceutical Sciences, Universiti Sains Malaysia, Minden 11800 Pulau Pinang, Malaysia

Abstract

To determine the current practices of private practitioners for the management of STIs in Pulau Pinang, Malaysia, evaluation of pharmacotherapy for STIs in private clinics and to ascertain the management of STIs compared to standard guidelines.

Methods:

Data was collected by self-administered questionnaire for private practitioners, which gathered information on their socio-demographic as well as practice characteristics. Descriptive statistical analysis was performed by using SPSS for Windows version 13.0.

Results:

Data was collected from 78 practitioners. Most of the treatment choices mentioned for the treatment of gonorrhoea were inconsistent with the guidelines. About 51.2% of practitioners did not screen their patients for HIV/AIDS. Majority of private practitioners counseled their patients about HIV/AIDS on an irregular basis. A high percentage of 59% did not inform health authorities about STI cases and 32.1% mentioned that they did not use any guidelines.

Conclusions:

Management of STIs by private practitioners with respect to selection of antibiotics, patient counseling and case notification leaves a lot to be desired. Current management practices can adversely impact on HIV/AIDS transmission in the country. Interventions are needed to improve the management practices of private practitioners.

Key words: Sexually Transmitted Infections (STIs), Management

Arshad A, R Rashid, Das Gupta E. A survey of the primary care management of osteoarthritis in Malaysia: a view from rheumatologist perspective. *Intl J Rheumatic Dis*; 10: 246-250

A survey of the primary care management of osteoarthritis in Malaysia: a view from a rheumatologist's perspective

Anwar ARSHAD,¹ Rozita RASHID¹ and Esha DAS GUPTA²

¹Putra Medical Centre, Off Jalan Putra, Alor Star, Kedah, Malaysia

²International Medical University, Seremban, Malaysia

Abstract

Objective:

Primary care management of knee osteoarthritis (OA) has received little attention in the scientific literature and the main reason for this survey is to study and explore the variations and patterns of primary care management and assess both conventional and complementary therapy usage in knee OA in the primary care setting.

Methods:

A cross-sectional survey of 200 randomly selected general practitioners (GPs) in the peninsular states of Malaysia was undertaken using a questionnaire. The GPs involved were asked about basic knowledge of OA in terms of diagnosis, investigation, and treatment. They were also asked about their usage of conventional and complementary medication.

Results:

One hundred and eighty (90%) GPs responded to the questionnaires sent: 77% were in solo practice and 33% in group practice. Most of the GPs surveyed (60%) had been in practice for more than 10 years, 30% for 5–10 years and 10% were in practice for less than 5 years. Of GPs surveyed, 55% saw an average of more than 20 patients per week, 35% about 10–20 patients and 10% less than 10 patients per week. Of GPs surveyed, 65% would arrange an X-ray, 55% would arrange a blood test, mostly serum uric acid, rheumatoid factor and erythrocyte sedimentation rate. Pharmacological management consists of first-line treatment with non-steroidal anti-inflammatory drugs (NSAIDs) (61%), analgesics (35%) or a combination of the two (4%). Non-pharmacological management consisted of advice on exercise (27%), weight reduction (33%) and referral to physiotherapy (10%). Of GPs surveyed, 85% prescribed some form of complementary medications, 60% prescribed glucosamine sulphate, 21% chondroitin sulphate, 11% cod liver oil and 9% evening primrose oil. Only 10% of GPs surveyed perform intra-articular injections.

Conclusion:

The data suggest that in the primary care setting, the majority of GPs over-investigate the diagnosis of OA. Pharmacological interventions largely concentrate on analgesics and NSAIDs. The use of physiotherapy and non-drug approaches were significantly under-utilized. There is a need to further educate GPs in the management of OA.

Key words: management, osteoarthritis, primary care.

Boo NY. Current understanding of congenital pneumonia. *Pediatric Hlth* 2008; 2: 563-569

Current understanding of congenital pneumonia

Nem-Yun Boo

Department of Paediatrics, International Medical University, Kuala Lumpur, Malaysia

Abstract

Currently there is no consistent definition of congenital pneumonia. The actual incidence of this condition is unknown. Autopsy studies on preterm infants suggest that this condition is grossly under-diagnosed and a common cause of death. Bacteria, virus and fungi have been reported to be the causative organisms, with *Staphylococcus epidermidis*, Group B *Streptococcus*, *Escherichia coli* and *Ureaplasma urealyticum* being the most common. Examination of the gastric aspirate or nasopharyngeal aspirates shortly after birth, or tracheal aspirates obtained within 8 h of birth, may identify the causative organisms. Except for Gram staining and routine microbiological culture, most of the diagnostic tests are expensive. This review presents the diagnostic problems, treatment, prevention and future perspective of this condition.

Key words: common organisms; congenital pneumonia; neonates

Boo NY. Current understanding of auditory neuropathy. *Annals Acad Med Singapore* 2008; 37(Suppl 3):60-62

Current understanding of auditory neuropathy

Boo NY

Department of Paediatrics, International Medical University, Kuala Lumpur, Malaysia.

Abstract

Auditory neuropathy is defined by the presence of normal evoked otoacoustic emissions (OAE) and absent or abnormal auditory brainstem responses (ABR). The sites of lesion could be at the cochlear inner hair cells, spiral ganglion cells of the cochlea, synapse between the inner hair cells and auditory nerve, or the auditory nerve itself. Genetic, infectious or neonatal/perinatal insults are the 3 most commonly identified underlying causes. Children usually present with delay in speech and language development while adult patients present with hearing loss and disproportionately poor speech discrimination for the degree of hearing loss. Although cochlear implant is the treatment of choice, current evidence show that it benefits only those patients with endocochlear lesions, but not those with cochlear nerve deficiency or central nervous system disorders. As auditory neuropathy is a disorder with potential long-term impact on a child's development, early hearing screen using both OAE and ABR should be carried out on all newborns and infants to allow early detection and intervention.

Key words: Auditory brainstem responses, Cochlear implant, Otoacoustic emissions

Boo NY, Lim SM, Koh KT, Lau KF, Ravindran J. Risk factors associated with low birth weight infants in the Malaysian population. *Med J Malaysia* 2008; 63: 306-310

Risk factors associated with low birth weight infants in the Malaysian population

Boo NY*, Lim SM*, Koh KT*, Lau KF*, Ravindran J**.

*Department of Paediatrics, Clinical School, International Medical University, Malaysia

**Departments of Obstetrics & Gynaecology, Tuanku Jaafar, Seremban, Negeri Sembilan, Malaysia

Abstract

This study aimed to identify the risk factors which were significantly associated with low birth weight (LBW, < 2,500g) infants among the Malaysian population. This was a case control study carried out at the Tuanku Jaafar Hospital, Seremban, Malaysia over a five month period. Cases were all infants born with birth weight less than 2,500g. Control infant were selected with the help of a random sampling table from among infants with birth weight of 2,500g born on the same day in the hospital. Of 3,341 live births delivered in the hospital, 422 (12.6%) were LBW infants. Logistic regression analysis showed that, after controlling for various potential confounders, the only significant risk factors associated with infants of LBW were gestational age (adjusted odds ratio [OR] = 0.6, 95% CI : 0.5, 0.6; < 0.0001), maternal pre pregnancy weight (adjusted OR = 0.97, 95% CI : 2.2, 5.1; p < 0.0001), previous history of LBW infants (adjusted OR = 2.3, 95% CI : 1.4, 3.8; p = 0.001) and PIH during current pregnancy (adjusted OR = 3.3, 95% CI : 1.6, 6.6; p = 0.001). A number of potentially preventable or treatable risk factors were identified to be associated with LBW infants in Malaysia.

Key words: Low Birth Weight, Risk Factors, Malaysia

Boo NY, Nor Azlina AA, Rohana J. Usefulness of a semi-quantitative procalcitonin test kit for early diagnosis of neonatal sepsis. Singapore Med J 2008; 49: 204-208

Usefulness of a semi-quantitative procalcitonin test kit for early diagnosis of neonatal sepsis

Boo NY, Nor Azlina AA, Rohana J.

Department of Paediatrics, Clinical School, International Medical University, Jalan Rasah, Seremban 70300, Malaysia

Abstract

Introduction:

This study was designed to determine the sensitivity and specificity of a semi-quantitative procalcitonin (PCT) test kit for the diagnosis of neonatal sepsis.

Methods:

Infants admitted to the neonatal intensive care unit with signs suggestive of sepsis were recruited into the study. Prior to commencement on antibiotics, the following investigations were carried out on each of these infants: blood culture and sensitivity, PCT semi-quantitation and C-reactive protein (CRP) estimation. Infants already on antibiotics, or who developed signs of sepsis within 72 hours of discontinuation of antibiotics, were excluded from the study.

Results:

Of the 87 infants recruited, 18 (20.7 percent) were confirmed to have sepsis based on positive blood culture results. At a PCT cut-off level of greater than or equal to 2 ng/ml, the sensitivity of the PCT-Q kit in detecting neonatal sepsis at the onset of symptoms was 88.9 percent and its specificity was 65.2 percent. The sensitivity of CRP for diagnosis of sepsis was 55.6 percent and its specificity was 89.9 percent.

Conclusion:

The semi-quantitative PCT test kit is of moderate sensitivity but poor specificity for early diagnosis of neonatal sepsis. A negative PCT test result may help to "rule out", while a raised CRP result helps to "rule in", the possibility of sepsis.

Key words: neonatal sepsis, procalcitonin, semiquantitative test kit

Boo NY, Rohani AJ, Asma A. Detection of sensorineural hearing loss using automated auditory brainstem-evoked response and transient-evoked otoacoustic emission in term neonates with severe hyperbilirubinemia. Singapore Med J 2008; 49: 209-214

Detection of sensorineural hearing loss using automated auditory brainstem-evoked response and transient-evoked otoacoustic emission in term neonates with severe hyperbilirubinaemia

Boo N Y, Rohani A J, Asma A

Department of Paediatrics, Clinical School, International Medical University, Jalan Rasah, Seremban 70300, Malaysia

Abstract

Introduction:

This study was designed to compare the sensitivity and specificity of detecting sensorineural hearing loss (SNHL) using the transient-evoked otoacoustic emissions (OAE) machine (the Madsen TE Echoscreen) and automated auditory brainstem response (AABR) machine (the Sabre Compac portable AABR) in term neonates exposed to severe hyperbilirubinaemia.

Methods:

This was a prospective study carried out over a 30-month period in a neonatal intensive care unit. Term infants (gestation equal to or greater than 37 weeks) with severe hyperbilirubinaemia (peak total serum bilirubin level equal to or greater than 300 $\mu\text{mol/L}$) were recruited. Hearing tests were carried out before discharge.

Results:

The median age of the 250 study infants when OAE and AABR were tested, was eight days (IQR four days) and their median age when auditory brainstem-evoked response (ABR) was done was 58 days (IQR 56 days). Based on the findings of ABR, 32 (12.8 percent) infants had unilateral or bilateral SNHL. There was no significant difference in the peak total serum bilirubin levels between infants with SNHL (median 333 $\mu\text{mol/L}$, IQR 57) and those without (median 340 $\mu\text{mol/L}$, IQR: 58) (p -value is 0.3). The sensitivity of OAE for detecting SNHL was 15.9 percent, and its specificity 95.2 percent. The sensitivity of the Sabre Compac portable AABR machine for detecting SNHL was 40.9 percent and its specificity was 63.2 percent.

Conclusion:

Both the OAE machine and the Sabre AABR machine were not sensitive enough for mass screening of SNHL in infants exposed to severe hyperbilirubinaemia.

Key words: automated auditory brainstem response, hearing loss, otoacoustic emissions, severe hyperbilirubinaemia, transient-evoked otoacoustic emissions

Chin SP, Sinnadurai J, Rosman A, et al. The ACS registry: Leading the charge for the National Cardiovascular Disease Database. Med J Malaysia 2008; 63(C): 29-34

Acute coronary syndrome (ACS) registry - leading the charge for National Cardiovascular Disease (NCVD) Database

S P Chin*, S Jeyaindran**, R Azhari***, W A Wan Azman****, I Omar*****, Z Robaayah***, K H Sim*****

*International Medical University, No 126, Jalan 19/155B, Bukit Jalil, 57000 Kuala Lumpur

**Kuala Lumpur Hospital, Jalan Pahang, 50586 Kuala Lumpur

***National Heart Institute, 145, Jalan Tun Razak, 50400 Kuala Lumpur

****University Malaya Medical Centre, 50603 Kuala Lumpur

*****Penang Hospital, Jalan Residensi, 10990 Georgetown, Penang

*****Sarawak General Hospital, Jalan Tun Ahmad Zaidi Adruce, 93586 Kuching, Sarawak, Malaysia

Abstract

Coronary artery disease is one of the most rampant noncommunicable diseases in the world. It begins indolently as a fatty streak in the lining of the artery that soon progresses to narrow the coronary arteries and impair myocardial perfusion. Often the atherosclerotic plaque ruptures and causes sudden thrombotic occlusion and acute ST-elevation myocardial infarction (STEMI), non-ST-elevation MI (NSTEMI) or unstable angina (UA). This phenomenon is called acute coronary syndrome (ACS) and is the leading cause of death not only in Malaysia but also globally. In order for us to tackle this threat to the health of our nation we must arm ourselves with reliable and accurate information to assess current burden of disease resources available and success of current strategies. The acute coronary syndrome (ACS) registry is the flagship of the National Cardiovascular Disease Database (NCVD) and is the result of the dedicated and untiring efforts of doctors and nurses in both public and private medical institutions and hospitals around the country, ably guided and supported by the National Heart Association, the National Heart Foundation, the Clinical Research Centre and the Ministry of Health of Malaysia. Analyses of data collected throughout 2006 from 3422 patients with ACS admitted to the 12 tertiary cardiac centres and general hospitals spanning nine states in Malaysia in this first report has already revealed surprising results. Mean age of patients was 59 years while the most consistent risk factor for STEMI was active smoking. Utilization of medications was high generally. Thirty-day mortality for STEMI was 11%, for NSTEMI 8% and UA 4%. Thrombolysis (for STEMI only) reduced in-hospital and 30-day mortality by nearly 50%. Percutaneous coronary intervention or PCI also reduced 30-day mortality for patients with non-ST elevation MI and unstable angina. The strongest determinants of mortality appears to be Killip Class and age of the patient. Fewer women received thrombolysis or underwent PCI on same admission although women make up 25% of the cohort.

Key words: Acute coronary syndrome, Registry, ST-elevation MI

Chinniah K, Nalliah S. Myomectomy and its impact on fertility and reproductive outcomes. J Paed Obstet Gynecol 2008; 115-120

Myomectomy and its Impact on fertility and reproductive outcomes

Chinniah Kathiravan; Nalliah Sivalingam

Obstetrics and Gynaecology Department, International Medical University Clinical School, Jalan Rasah, Negeri Sembilan, Malaysia

Abstract

Leiomyoma is a common benign tumour of the pelvis affecting 30% to 50% of women in their reproductive years. Surgery in the form of hysterectomy is the mainstay of definitive therapy. Indications include symptomatic uterine leiomyomas unresponsive to pharmacological interventions, pressure effects on surrounding organs, a high suspicion of malignancy, postmenopausal growth, and iron deficiency anaemia due to excessive bleeding. Myomectomy is an alternative when preservation of fertility or of the uterus is desired. It is also performed to improve fertility, provided other causes of subfertility have been excluded. The conventional laparotomic myomectomy was first described by Atlee, and remains today the more favoured approach. Since the first published report by Semm and Mettler, laparoscopic myomectomy has steadily gained acceptance. This review attempts to gauge the role of myomectomy and its various routes in patients presenting with leiomyoma and subfertility, with its subsequent impact on fertility and pregnancy outcome.

Choo MM, Reddy SC, EPS Fong, A Sheena, FJ Martin. Acquired corneal ulceration in a neonate with Goldenhar Syndrome's managed with modified Cuttler-Beard procedure. Intl J Ophthalmol 2008; 8(2): 245-247

Acquired corneal ulceration in a neonate with Goldenhar's syndrome managed by modified Cutler-Beard procedure

M M Choo¹, S C Reddy¹, E P S Fong², A Sheena¹, F J Martin³

¹Department of Ophthalmology, University of Malaya, Kuala Lumpur, Malaysia

²Department of Surgery, University of Malaya, Kuala Lumpur, Malaysia

³Department of Ophthalmology, Children's Hospital, Westmead, NSW, Australia

Abstract

Acquired corneal ulceration in a neonate is not common. An infant with Goldenhar syndrome had a large central defect in his left upper eyelid, and developed corneal ulceration in the neonatal period. This case report documents the management of such a case with the modified Cutler-Beard procedure, which was performed as an emergency procedure after conservative measures failed to heal the ulcer.

Key word: Goldenhar syndrome; coloboma of upper eyelid; corneal ulceration; modified Cutler-Beard procedure

Chu WL, Radhakrishnan AR. Research on bioactive molecules: achievements and the way forward. *leJSME* 2008; 2 (Suppl 1): S21-S24

Research on bioactive molecules: achievements and the way forward

Wan-Loy Chu¹, Ammu Kutty Radhakrishnan²

¹Human Biology Section, Faculty of Medicine and Health, International Medical University, Kuala Lumpur, Malaysia

²Pathology Section, Faculty of Medicine and Health, International Medical University, Kuala Lumpur, Malaysia

Abstract

Research on bioactive molecules is one of the thrust areas of research at the International Medical University (IMU). The bioactive molecules that have attracted the interest of IMU researchers include tocotrienol, astaxanthin, zingerone, apigenin, carrageenan and phycocyanin. There are also projects which focus on the screening of extracts from local plants such as *Elephantopus mollis*, *Morinda citrifolia*, *Pereskia bleo*, *Euphorbia hirta*, *Zinger officinale*, *Mangifera indica* and *Nephelium lappaceum* and algae such as *Spirulina* and *Gracilaria*. Characterisation of the toxin from *Bacillus thuringiensis* is another area of active research at IMU. The compounds and extracts from the various organisms are screened for anticancer, antioxidative, antiviral and immuno-modulating activity. There are also studies on the production of recombinant molecules, especially monoclonal antibodies for the detection of house dust mites, *Salmonella typhi* and *Candida*. The pool of faculty with diverse expertise and the active collaboration with public universities and institutions have enhanced the progress of bioactive research at IMU. With the current postgraduate and Bachelor of Medical Science (B. MSc.) programme and the introduction of new programmes in health sciences, there are good opportunities for training of students in the research on bioactive molecules. The future research direction should focus on the mechanisms of action of the bioactive molecules using new approaches such as 'omic' technologies and in silico modelling.

Key words: Algae, anticancer, antioxidant, antiviral, bioactive compounds, recombinant molecules, tocotrienol

Chua KB, Voon K, Cramer G, Tan HS, Rosli J, McEachern JA, Suluraju S, Yu M, Wang LF. Identification and characterization of a new orthoreovirus from patients with acute respiratory infections. PLoS ONE 2008; 3(11): e3803

Identification and characterization of a new orthoreovirus from patients with acute respiratory infections

Kaw Bing Chua^{1,2*}, Kenny Voon², Gary Cramer³, Hui Siu Tan⁴, Juliana Rosli¹, Jennifer A. McEachern³, Sivagami Suluraju⁴, Meng Yu³, Lin-Fa Wang^{3*}

¹National Public Health Laboratory, Sg. Buloh, Selangor, Malaysia

²International Medical University, Bukit Jalil, Kuala Lumpur, Malaysia

³CSIRO Livestock Industries, Australian Animal Health Laboratory and Australian Biosecurity Cooperative Research Center for Emerging Infectious Diseases, Geelong, Australia

⁴Klinik Kesihatan Kampar, Jalan Degong, Perak, Malaysia

Abstract

First discovered in the early 1950s, reoviruses (respiratory enteric orphan viruses) were not associated with any known disease, and hence named orphan viruses. Recently, our group reported the isolation of the Melaka virus from a patient with acute respiratory disease and provided data suggesting that this new orthoreovirus is capable of human-to-human transmission and is probably of bat origin. Here we report yet another Melaka-like reovirus (named Kampar virus) isolated from the throat swab of a 54 year old male patient in Kampar, Perak, Malaysia who was suffering from high fever, acute respiratory disease and vomiting at the time of virus isolation. Serological studies indicated that Kampar virus was transmitted from the index case to at least one other individual and caused respiratory disease in the contact case. Sequence analysis of the four small class genome segments indicated that Kampar and Melaka viruses are closely related. This was confirmed by virus neutralization assay, showing an effective two-way cross neutralization, i.e., the serum against one virus was able to neutralize the other. Although the exact origin of Kampar virus is unknown, epidemiological tracing revealed that the house of the index case is surrounded by fruit trees frequently visited by fruit bats. There is a high probability that Kampar virus originated from bats and was transmitted to humans via bat droppings or contaminated fruits. The discovery of Kampar virus highlights the increasing trend of emergence of bat zoonotic viruses and the need to expand our understanding of bats as a source of many unknown viruses.

Chye SM, Hseu YC, Liang SH, Chen CH, Chen SC. Single strand DNA breaks in human lymphocytes exposed to para-phenylenediamine and its derivatives. Bull Environ Contam Toxicol 2008; 80: 58-62

Single strand DNA breaks in human lymphocytes exposed to para-phenylenediamine and its derivatives

Soi Mei Chye¹, You Cheng Hseu², Shih-Hsiung Liang³, Chin-Hui Chen³, Ssu Ching Chen^{4,5}

¹School of Pharmacy & Health Science, International Medical University, Kuala Lumpur, Malaysia

²Department of Cosmeceutics, China Medical University, Taichung, Taiwan, ROC

³Department of Biotechnology, National Kaohsiung Normal University, Kaohsiung, Taiwan, ROC

⁴School of Pharmacy, Taipei Medical University, Taipei 110-31, Taiwan, ROC

⁵Department of Medical Technology, Yuanpei Institute of Science and Technology, Hsin-Chu, Taiwan, ROC

Abstract

Para-Phenylenediamine (PPD), the main aromatic amines used in the hair dye formation, and its four derivatives (2-chloro-p-phenylenediamine, 4-chloro-o-phenylenediamine, 2-nitro-p-phenylenediamine, and 4-nitro-o-phenylenediamine) were examined for their potential to produce single strand DNA breaks in human lymphocytes using the alkaline comet assay. Results revealed that all the tested chemicals within the range of doses from 100 μ M to 500 μ M showed the genotoxicity in a dose-dependent manner after the incubation of lymphocytes with these chemicals for 2 h. In this study, we first reported that PPD and its four derivatives can elicit the type of single strand breaks in human lymphocytes.

Key words: para-Phenylenediamine (CAS 106-50-3), Comet assay, Lymphocytes, Genotoxicity

Dharmani M, Mustafa MR, Achike FI, Sim MK. Involvement of AT₁ angiotensin receptors in the vasomodulatory effect of des-aspartate-angiotensin I in the rat renal vasculature. *Peptides* 2008; 29: 1773- 1780

Involvement of AT₁ angiotensin receptors in the vasomodulatory effect of des-aspartate-angiotensin I in the rat renal vasculature

M. Dharmani ^a, M.R. Mustafa ^{a,*}, F.I. Achike ^b, M.K. Sim ^c

^aDepartment of Pharmacology, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia

^bClinical Sciences Section, International Medical University, Sesama Centre, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

^cDepartment of Pharmacology, Yong Loo Lin School of Medicine, Building MD11, 10 Medical Drive, University of Singapore, 117597 Singapore City, Singapore

Abstract

Angiotensin II is known to act primarily on the angiotensin AT₁ receptors to mediate its physiological and pathological actions. Des-aspartate-angiotensin I (DAA-I) is a bioactive angiotensin peptide and have been shown to have contrasting vascular actions to angiotensin II. Previous work in this laboratory has demonstrated an overwhelming vasodepressor modulation on angiotensin II-induced vasoconstriction by DAA-I. The present study investigated the involvement of the AT₁ receptor in the actions of DAA-I on angiotensin II-induced vascular actions in the renal vasculature of normotensive Wistar-Kyoto rats (WKY), spontaneously hypertensive rats (SHR) and streptozotocin (STZ)-induced diabetic rats. The findings revealed that the angiotensin receptor in rat kidney homogenate was mainly of the AT₁ subtype. The AT₁ receptor density was significantly higher in the kidney of the SHR. The increase in AT₁ receptor density was also confirmed by RT-PCR and Western blot analysis. In contrast, AT₁ receptor density was significantly reduced in the kidney of the streptozotocin-induced diabetic rat. Perfusion with 10⁻⁹ M DAA-I reduced the AT₁ receptor density in the kidneys of WKY and SHR rats suggesting that the previously observed vasodepressor modulation of the nonapeptide could be due to down-regulation or internalization of AT₁ receptors. RT-PCR and Western blot analysis showed no significant changes in the content of AT₁ receptor mRNA and protein. This supports the suggestion that DAA-I causes internalization of AT₁ receptors. In the streptozotocin-induced diabetic rat, no significant changes in renal AT₁ receptor density and expression were seen when its kidneys were similarly perfused with DAA-I.

Key words: Angiotensin subtype 1 receptor, Des-aspartate angiotensin I, Renal vasculature, Streptozotocin-induced diabetes, Spontaneously hypertensive rat

DMani S. Literary appreciation for medical students at International Medical University, Kuala Lumpur: the learner's experience. *J Med Ethics; Medical Humanities* 2008; 34: 88-92

Literary appreciation for medical students at International Medical University, Kuala Lumpur: the learner's experience

S S DMani

Ms S S DMani, Language, Culture and Communication Department, International Medical University, No 126, Jalan 19/155B, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

Abstract

Background:

A literature in medicine module was offered to second-year undergraduate medical students at the International Medical University. The general aim of this educational initiative was to enhance the selected medical students' understanding of medical practice through literature.

Objective:

This study was carried out to discover the selected students' learning experience through the literature in medicine module.

Methods:

A qualitative study was conducted by using two different semi-structured questionnaires which were administered respectively at the beginning and end of the course. The data were explored using grounded theory and by coding responses for emerging themes.

Results:

Students identified the following key benefits that enhanced their learning experience: "opportunity to identify, explore and develop self"; "gained patient's perspective of suffering and emotional needs"; "abilities to understand the mechanics and influences of society".

Conclusion:

The literature in medicine selective has directed the selected students towards developing self, reflecting on the profession and understanding the dynamics of society. By diversifying the design and delivery of the module, the students have gained a holistic medical education. Therefore, this module has the potential for development, exploration and implementation within this region.

Key words: MEDICAL students; SUFFERING; MEDICINE -- Study & teaching; GROUNDED theory

Hee CS, Gun SC, Naidu R, Somanath SD, Radhakrishnan AK. The Relationship between single nucleotide polymorphisms of the interleukin-10 gene promoter in systemic lupus erythematosus patients in Malaysia: a pilot study. *Intl J Rheu Dis* 2008; 11 (2): 148-154

The relationship between single nucleotide polymorphisms of the interleukin-10 gene promoter in systemic lupus erythematosus patients in Malaysia: a pilot study

Chee Seng HEE¹, Suk Chyn GUN², Rakesh NAIDU³, Sushela Devi SOMNATH¹, Ammu Kutty RADHAKRISHNAN¹

¹Department of Pathology, International Medical University, Malaysia, no. 126, Jalan 19/155B, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

²Department of Medicine, Hospital Tuanku Ja'afar Seremban, Jalan Rasah, 70300 Seremban, Malaysia

³School of Medicine and Health Sciences, Monash University, Jalan Lagoon Selatan, 46150 Bandar Sunway, Selangor Darul Ehsan, Malaysia

Abstract

Aim:

Recent studies have shown that single nucleotide polymorphisms (SNPs) have been identified within the promoter of the human interleukin-10 (IL-10) gene may participate in the pathogenesis of systemic lupus erythematosus (SLE) and may be related to disease activity. This is a pilot study that investigated the allelic and genotype frequencies of three SNPs in the human IL-10 gene promoter [rs1800896 (position: -1082G > A), rs1800871 (position: -824C > T) and rs1800872 (position: -597C > A)] among Malaysian SLE patients and normal subjects.

Methods:

Blood was drawn from 44 SLE patients and 44 age- and sex-matched healthy control subjects for DNA extraction. The SNPs were identified using the polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) method.

Results:

There was no significant difference in the genotype and allele frequencies between the SLE patients and control subjects. A statistically significant difference was detected in the haplotype frequencies between the patients and controls ($P = 0.004$).

Conclusions:

There is a significant difference in the haplotype frequencies between the SLE patients and controls; the SNPs in the human IL-10 gene promoter could play an important role in the pathogenesis of SLE.

Key words: Interleukin-10 (IL-10); single nucleotide polymorphisms (SNP); systemic lupus erythematosus (SLE)

Hla-Yee-Yee, Radhakrishnan AK, Ponnudurai G. Improving Problem-Based Learning (PBL): let's go fly a kite! J Med Edu 2008; 11(4): 308-313

Improving PBLs: let's go fly a kite!

Hla Yee Yee, Ammu Radhakrishnan, Gnanajothy Ponnudurai

International Medical University

Abstract

A method which we call "Flying A Kite Approach" to PBL was tested on second year medical students (third Semester) at the International Medical University. This method channels students into thinking of alternative causes of a clinical presentation and prepares medical students in the way they would be functioning in their professional lives. A pre-tested anonymous questionnaire addressing students' perception of PBL, characteristics of a "good" facilitator, and students' rating of the new approach against the usual "one diagnosis" or "Bull's eye" approach was distributed to 53 students in four PBL groups. Forty six were returned. The "Flying A Kite" approach scored higher than the other the positive aspects and lower on the negative facets. The approach appears to be well-received.

Key words: PBL ; facilitator ; trigger

Jayaram J, Lai NM, Foong KW, Mohammad Salleh SZ. Prevailing practice versus clinical guideline: the in-patient assessment and management of childhood pneumonia in a district hospital. *IeJSME* 2008; 4: 2 (2): 9-16

Prevailing practice versus clinical guideline: the in-patient assessment and management of childhood bronchopneumonia in a Malaysian district hospital

Jacyntha Jayaram¹, Nai Ming Lai², Kin Wai Foong³, Sit Zaleha Mohammad Salleh⁴

¹Department of Anaesthesia, Hospital Tuanku Jaafar, Seremban, 73000, Negeri Sembilan Darul Khusus, MALAYSIA

²Department of Paediatrics, International Medical University, Clinical School Batu Pahat, Batu Pahat, 83000, Johor Darul Takzim, MALAYSIA

³Paediatric Specialist, Klinik Kanak-Kanak Paediacare, 32, Jalan Temenggong 7/9, Bandar Mahkota Cheras, 43200, BT9, Cheras, Selangor Darul Ehsan, MALAYSIA

⁴Director, Hospital Selayang, Batu Caves, 68100 Selangor Darul Ehsan, MALAYSIA

Abstract

Introduction:

Pneumonia is the most common diagnosis made in hospitalised children. The Malaysian Clinical Practice Guidelines on pneumonia and respiratory tract infections provides a comprehensive guidance in the local context. We evaluated the documented assessment and management of children diagnosed with pneumonia admitted to the children's ward, Hospital Batu Pahat against this guideline.

Methods:

We performed a retrospective analysis of hospital case notes for children admitted from January to May 2004.

Results:

Ninety six case notes were analysed. Most patients (84%) had at least four positive clinical features leading to the diagnosis of pneumonia. 92% met the guideline criteria for admission. SpO₂ was performed for 58% on admission, and 58% with reading below 95% received supplemental oxygen. Throughout hospital stay, each patient had an average of four investigations (range: 1 – 12). Among 23 patients who had further investigations, justifications were only recorded in seven patients (30.4%), and changes in management resulted in 23%. The most common antibiotic prescribed was intravenous Penicillin (97 %). In 17 patients who met the guideline classification for severe pneumonia, none received the recommended antibiotic combination. The median time to fever resolution was 22 hours (range 2 – 268), and median hospital stay was 3 days (range 1 – 12).

Conclusions:

Although the quality of clinical assessment and antibiotic choices were acceptable, there was a failure to critically evaluate patients according to disease severity and initiate corresponding investigations and managements. Future efforts need to be directed at promoting further guideline adherence and the exercise of critical judgment in patient evaluation.

Key words: Bronchopneumonia, children, clinical audit, hospitals, district

Jayaveera KJ, V. Sreenivasulu, P. Pichika MR. Vasanth Kumar, T. Bharathi.
Screening of anti tumour L-asparaginase positive fungal cultures from soil. J
Pharm Chem 2008, 2: 94-96

Screening of anti tumour L-asparaginase positive fungal cultures from soil

*¹K.N. Jayaveera, V. Sreenivasulu², P. Mallikarjuna Rao³, P.Vasanthakumar⁴,
T. Bharathi⁴

¹Department of Chemistry, J.N.T.U. College of Engineering, Anantapur, Andhra Pradesh, India
515001

²K.L.R. Pharmacy College, Palvancha, Khammam (Dist), India

³International Medical University, Sesama Centre, Plaza Komanwel, Kuala Lumpur, Malaysia
57000

⁴Krishna Teja Pharmacy Pollege, Tirupathi, Chittoor (District), Andhra Pradesh, India

Abstract

An extracellular L-asparaginase producing fungal strains were isolated from soil samples by using a pH and dye-based fast procedure. Fifty fungal strains were isolated. The results are obtained within 96 h when the media was supplemented with L-asparagine. Among the isolates VS-26 found to be highest L-asparaginase activity (3.64 uml^{-1}) and its culture filtrate PH was 8.78.

Key words: L-asparaginase, L-asparagine, extracellular, soil samples, fungal strains

Jutti RC, Nadarajah VD, Lim VKE. Initiatives for medical education research at the International Medical University. *IeJSME* 2008; 19-20

Initiatives for medical education research at the International Medical University

Ramesh Chandra Jutti^{1*}, Vishna Devi Nadarajah, Victor Lim

¹Academic Dean, Clinical School, International Medical University, Jalan Rasah, Seremban 70300, Negeri Sembilan, MALAYSIA

Abstract

Medical Education research is a relatively new field but one that is progressing rapidly worldwide. This article is an attempt to take stock of the current status of Medical Education research in International Medical University and to explore the various factors that have influenced its direction. It also shares some of the initiatives that have been instituted or intended to be instituted at our university.

Key words: Medical education, research

Lai PJ, Chu WL, Naidu R, Khoo ASB, Kok YY, Shar Mariam M, Ling SN, Mak JW, Lim KC, Balraj P, Phang SM. Antiproliferative activity of microalgal extracts on nasopharyngeal carcinoma (NPC) cells. *Malaysian J Sci* 2008; 27(2): 19-31

Antiproliferative activity of microalgal extracts on nasopharyngeal carcinoma (NPC) cells

P. J. Lai^{1,4}; W. L. Chu²; R. Naidu^{1,3}; A. S. B. Khoo⁴; Y. Y. Kok¹; Shar, M. M.²; S.N. Ling²; J. W. Mak²; K. C. Lim⁴; P. Balraj⁴ and S. M. Phang⁵

¹Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia

²International Medical University, 126 Jalan 19/155B, 57000 Kuala Lumpur, Malaysia

³School of Medicine and Health Sciences, Monash University Sunway Campus, Jalan Lagoon Selatan, 46150 Selangor, Malaysia

⁴Molecular Pathology Unit, Institute for Medical Research, Jalan Pahang, 50588 Kuala Lumpur, Malaysia

⁵Institute of Biological Sciences and Institute of Ocean and Earth Sciences, University of Malaya, 50603 Kuala Lumpur, Malaysia

Abstract

Nasopharyngeal carcinoma (NPC) is a type of epithelial neoplasms arising from the nasopharynx. The disease is frequently encountered in southern China, Taiwan and Hong Kong. Algae are known to be a potential source of bioactive compounds with antiproliferative activity on cancer cells. The objective of this study was to screen extracts of microalgae from the University of Malaya Algae Culture Collection (UMACC) for antiproliferative activity against NPC cell lines. Solvent and aqueous extracts of 19 microalgae from the UMACC were screened for antiproliferative activity on four NPC cell lines, namely CNE1, HONE1, TWO1 and TWO4. The methanol extracts from two microalgae, namely *Ankistrodesmus convolutus* UMACC 101 and *Synechococcus elongatus* UMACC 105 showed antiproliferative activity on the NPC cell lines, with IC₅₀ values ranging from 95.7 to 98.0 µg/mL. The methanol extract from *Synechococcus elongatus* was subjected to fractionation by column and thin layer chromatography (TLC) using a combination of hexane and acetone at different ratios. Fraction 7' obtained from the pooled eluents of 6:4, 5:5, 4:5 and 3:7 hexane-acetone was the most active, with IC₅₀ values of 10.2 and 4.8 µg/mL on CNE1 and TWO4 cells respectively. The cytotoxic effect of Fraction 7' was evident against CNE1 and TWO4 cells after 24 and 48h respectively at 30.0 µg/mL. The mechanism of action of Fraction 7' could be through induction of apoptosis as indicated by the increased percentage of cells in the Sub-G0 phase in cell cycle analysis by flow cytometry. The active compound in Fraction 7' could be a derivative product of chlorophyll a, as indicated by the blackish green spot after separation by TLC. Further studies are warranted to elucidate the structure of the active principle in Fraction 7'.

Key words: Microalgae, nasopharyngeal carcinoma (NPC), antiproliferative activity, *Ankistrodesmus convolutus*, *Synechococcus elongatus*

Lee Hwee Yong, Ambu S, Somanath SD, Mala-Maung. Detection of protozoan and bacterial pathogens of public health importance in faeces of *Corvus* spp. (large-billed crow). *Trop Biomed* 2008; 25(2): 134 –139

Detection of protozoan and bacterial pathogens of public health importance in Faeces of *Corvus* spp. (large-billed crow)

Lee HY, Stephen A, Sushela D, Mala M.

International Medical University, 57000 Kuala Lumpur, Malaysia

Abstract

Parasites and bacteria are reported in the faeces of birds in the current study. Fresh faecal samples of the large-billed crow (*Corvus* spp.) were collected from the study site at Bangsar, an urban setting in Kuala Lumpur, Malaysia. These samples were transported to laboratory and analysed for parasites and bacteria. Pre-prepared XLD agar plates were used for culturing the bacteria in the laboratory. Using the API 20ETM Test Strips, 9 different species of bacteria were identified belonging to the family Enterobacteriaceae. They were *Citrobacter freundii*, *Enterobacter cloacae*, *Proteus mirabilis*, *Klebsiella pneumoniae*, *Kluyvera ascorbata*, *Salmonella arizonae*, *Salmonella typhi*, *Shigella flexneri* and *Shigella sonnei*. The protozoan parasites detected include *Cryptosporidium* spp., *Cyclospora* spp., *Blastocystis* spp., and *Capillaria hepatica* and *Ascaris lumbricoides* ova. Environmental air samples collected on agar plates using an air sampler in the area only produced fungal colonies. Some of these pathogens found in the crows are of zoonotic importance, especially *Cryptosporidium*, *Blastocystis*, *Cyclospora*, *Salmonella*, *Shigella* and *Kluyvera*. The finding of *Kluyvera* spp. in crows in our current study highlights its zoonotic potential in an urban setting

Lee KH, Chen YS, Judson JP, Chakravarthi S, Sim YS, Er HM. The effect of water extracts of *Euphorbia hirta* on cartilage degeneration in arthritic rats. *Malaysian J Pathol* 2008; 30(2): 95-102

The effect of water extracts of *Euphorbia hirta* on cartilage degeneration in arthritic rats

Kah Heng LEE^a, Yu Sui CHEN^a, John Paul JUDSON^a, Srikumar CHAKRAVARTHI^b, Yen Mi SIM^a, Hui Meng ER^c

^aHuman Biology Section, ^bPathology Section, ^cSchool of Pharmacy & Health Sciences, International Medical University, Kuala Lumpur, Malaysia

Abstract

The effect of water extracts of *Euphorbia hirta* on the histological features and expressions of matrix metalloproteinases (MMPs) and tissue inhibitors of matrix metalloproteinases (TIMPs) in the rat articular cartilage was investigated. Arthritis was induced in rats using Freund's Complete Adjuvant containing heat-killed *M. tuberculosis*, and treated with water extracts of *E. hirta*. Paraffin tissue sections of the arthritic joints were evaluated. The extent of cartilage degeneration was found to be greatest in rats treated with the highest dosage of *E. hirta*, followed by rats in the untreated group. Rats treated with the intermediary and low dosages of *Euphorbia hirta* showed improved histology. MMP-13 levels were found to be decreased with decreasing dosages of *E. hirta*. TIMP-1 levels were found to increase with decreasing dosages of *E. hirta*. MMP-3 levels fluctuated without any appreciable pattern. Low dosages of *E. hirta* seem to be beneficial in reducing cartilage degeneration in cases of arthritis.

Key words: *Euphorbia hirta*; MMP-3; MMP-13; TIMP-1; arthritis

Liew Su-May, Tong Seng Fah, Lee VKM, Ng Chirk Jenn, et al. Text messaging reminders to reduce non-attendance in chronic disease follow-up: a clinical trial. *Brit J General Pract* 2009; 59: 916–920

Text messaging reminders to reduce non-attendance in chronic disease follow-up: a clinical trial

Liew, Su-May¹; Tong, Seng Fah²; Lee, Verna Kar Mun³; Ng, Chirk Jenn⁴; Leong, Kwok Chi⁵; Teng, Cheong Lieng³

¹Department of Primary Care Medicine, University of Malaya, Department of Primary Care Medicine, Faculty of Medicine, Lembah Pantai, Kuala Lumpur, 50603

²Universiti Kebangsaan Malaysia

³Department of Family Medicine, International Medical University, Malaysia

⁴Department of Primary Care Medicine, University of Malaya

⁵School of Medicine, Deakin University, Geelong, Victoria, Australia

Abstract

Background:

Non-attendance results in administrative problems and disruption in patient care. Several interventions have been used to reduce non-attendance, with varying degree of success. A relatively new intervention, text messaging, has been shown to be as effective as telephone reminders in reducing non-attendance. However, no study has looked specifically at using text messaging reminders to reduce non-attendance in chronic disease care.

Aim:

To determine if text messaging would be effective in reducing non-attendance in patients on long-term follow-up, compared with telephone reminders and no reminder.

Design of study:

A randomised controlled trial with three arms: text messaging reminder, telephone reminder, and control.

Setting:

Two primary care clinics in Malaysia.

Method:

A total of 931 subjects who had been on at least 6 months of follow-up were randomised into the three groups. Demographic variables were recorded at the first visit. In the intervention arms, a reminder was sent 24-48 hours prior to the appointment. Non-attendance rate was documented at the second visit. Non-attenders were defined as those who did not attend, attended early, or attended late without rescheduling their appointment. Attenders were defined as participants who had turned up for their scheduled appointment and those who had changed or cancelled their appointment with notification.

Results:

The non-attendance rates in the text messaging group (odds ratio [OR] = 0.62, 95% confidence interval [CI] = 0.41 to 0.93, P = 0.020) and the telephone reminder group (OR = 0.53, 95% CI = 0.35 to 0.81), P = 0.003) were significantly lower than the control group. The absolute non-attendance rate for telephone reminders was lower by 2%

compared to the text messaging group. This difference was not found to be statistically significant ($P = 0.505$).

Conclusion:

Text messaging was found to be as effective as telephone reminder in reducing non-attendance in patients who required long-term follow-up for their chronic illnesses in this study. It could be used as an alternative to conventional reminder systems.

Key words: non attendance; primary health care; randomised

Lim PH, Low C. Reflective practice from the perspective of the Bachelor of Nursing students International Medical University (IMU). Singapore Nursing J 2008; 35(3):5-15

Reflective practice from the perspective of the Bachelor of Nursing students International Medical University (IMU)

Lim Pek Hong, Low Chew

International Medical University

Abstract

The research project carried out on students of the Bachelor of Nursing (Honours) Programme, International Medical University (IMU) with the following objectives:

1. To explore the students' view of reflective practice;
2. To identify factors that have motivated the students to practise reflection and writing reflective journals;
3. To identify factors that could have impeded the students in reflective practice;
4. To elicit ways that could further motivate reflective practice in students.

Data were collected using questionnaires and focus group interviews. Thirty one students from the first two intakes of the programme were recruited for the study. A response rate of 77.42% was obtained. Focus interviews were conducted on eight students from the two groups of students. Findings revealed that the students viewed reflective practice as a form of learning that provided them with an opportunity to express themselves, keep a record of their learning experiences for reflection after duty, and in the process helped them improve in the clinical area. Factors that had motivated them included feedback and guidance from their preceptors, and having group discussions. Factors that inhibited the reflective practice included not sure of what need to be entered in the reflective journals, language and time constraints as well as personal attitude. The students suggested that guidance and feedback from preceptors, and having more sample reflective journals would motivate them in reflective practice. It is recommended that a session should be planned to introduce reflection, reflective practice and journaling to the students in the first semester before they start their clinical posting. A workshop on reflective practice and its underlying skills should be organised for all new academic staff in the Nursing Department, in particular the preceptors as they will also be supervising students during their clinical postings. There is a need to structure some time each week during clinical postings for students to write their reflective journals.

Key words: Reflection, Reflection-in-action, Reflection-on-action, Reflective cycle, Reflective practice

Lim PH, Low C. Reflective practice from the perspective of the Bachelor of Nursing students: a focus interview. Singapore Nursing J 2008; 35(4):42-48

Reflective practice from the perspective of the Bachelor of Nursing students: a focus interview

Lim Pek Hong, Low Chew

International Medical University

Abstract

Objectives:

1. To explore the students' view of reflective practice;
2. To identify factors that have motivated the students to practise reflection and writing reflective journals;
3. To identify factors that could have impeded the students in reflective practice;
4. To elicit ways that could further motivate reflective practice in students.

Data Collection:

Data were collected using questionnaires and focus group interviews. Thirty one students from the first two intakes of the programme were recruited for the study. A response rate of 77.42% was obtained. Focus interviews were conducted on eight students from the two groups of students.

Findings:

Details on the findings from the questionnaire were reported in Lim and Low (2008). The students mentioned that the practice of reflection helped them improve in the clinical area. Factors that had motivated them included feedback and guidance from their preceptors, and having group discussion.

Recommendations:

A session to introduce reflection, reflective practice and journaling to the students in the first semester before they start their clinical posting is recommended. A workshop on reflective practice and its underlying skills should be organised for all new academic staff in the Nursing Department, in particular the preceptors as they will also be supervising students during their clinical postings. There is a need to structure some time each week during clinical postings for students to write their reflective journals.

Key words: Reflection, Reflection-in-action, Reflection-on-action, Reflective cycle, Reflective practice

Medical education in Malaysia

Victor K.E. Lim

International Medical University, Kuala Lumpur, Malaysia

Abstract

Malaysia has a long history of medical education, with Singapore becoming the first medical school to serve the region after its foundation in 1905. The first school to be established in Kuala Lumpur after independence from the British was the Faculty of Medicine at the University of Malaya in 1963. Whilst today there are 21 public and private medical schools, all offering a 5 year undergraduate programme, some private schools have diversified by developing international collaboration and conduct twinning or credit-transfer programmes. All medical schools require accreditation by the National Accreditation Board and the Malaysian Medical Council. Although the criteria for accreditation is comprehensive and covers a broad range of areas of assessment, it is debatable whether it always matches the needs of the country. The dramatic increase in medical schools in the last two decades has posed challenges in terms of maintenance of quality, physical infrastructure and suitably qualified faculty.

Loh KY, Kew ST. Understanding non ulcer dyspepsia. Med J Malaysia 2008; 63: 174 -178

Understanding non ulcer dyspepsia

K Y Loh¹, T K Siang²

¹Department of Family Medicine, IMU Clinical School, Jalan Rasah, Seremban 70300, Malaysia

²Department of Internal Medicine, IMU Clinical School, Jalan Rasah, Seremban 70300, Malaysia

Abstract

Non ulcer dyspepsia is one of the most common problems encountered in primary care practice. The underlying pathophysiology of non ulcer dyspepsia is not fully understood, but it is known that this condition is associated with *H. pylori* infection and motility disorder. The presenting abdominal symptoms are non specific: they include bloating, belching, flatulence, excessive fullness after eating and nausea. Psychological condition such as anxiety, depression and stress do play a role in the recurrence of symptoms. Upper GI endoscopy is necessary in patients who presents with alarm symptoms suggestive of possible underlying organic condition before one makes the diagnosis of non ulcer dyspepsia. Pharmacological therapy using H2 receptor antagonist and proton pump inhibitors are effective for symptom relief. Patient's education and supportive care should be part of the management strategy in recurrent chronic dyspepsia.

Key words: Non ulcer dyspepsia, functional dyspepsia, abdominal symptoms, *H.pylori*

Loh KY, Kew ST. Endocannabinoid system and cardio-metabolic syndrome. Med J Malaysia 2008; 63: 348-351

Endocannabinoid system and cardio-metabolic risk

K Y Loh*, S T Kew**

*Department of Family Medicine, **Department of Internal Medicine, International Medical University Malaysia, Jalan Rasah, Seremban 70300, Malaysia

Abstract

Recent research in bio-medical science has shown an integral role of endocannabinoid system (ECS) in determining cardiometabolic risk of human body. The mechanism is mediated through binding of endocannabinoids at the CB1 receptors. The stimulation of CB1 receptor in the brain is believed to control and mediate the effects on appetite. In normal physiology, CB1 receptors activation is responsible for energy homeostasis, govern emotions and behaviors such as anxiety, fear, appetite, food and water intake. CB1 receptors also found in peripheral tissues like liver, pancreas, skeletal muscles and adipose tissues, which play an important role in lipid and glucose metabolism. Over-activation of ECS is associated with various metabolic diseases such as dyslipidemia, insulin resistance, lipogenesis, excessive weight gain and increasing intra-abdominal obesity. All these events lead to increased cardiovascular risk. Use of selective CB1 receptor blocker such as rimonabant has shown to reduced waist circumference, better glycemic control, lower triglyceride levels, raise HDL cholesterol and overall reduction in total body fat. This drug has been recommended for patients with metabolic syndrome.

Key words: Endocannabinoid system (ECS), Metabolic, CB1 receptor, Rimonabant

Loh KY, Nalliah S. Enhancing doctor patient relationship: the humanistic approach. Med J Malaysia 2008; 63: 85-87

Enhancing doctor patient relationship: the humanistic approach

K Y Loh¹, N Sivalingam²

¹Department of Family Medicine, IMU Clinical School, Jalan Rasah, 70300 Seremban, Malaysia

²Department of O&G, IMU Clinical School, Jalan Rasah, 70300 Seremban, Malaysia

Abstract

Doctor-patient relationship is a special kind of social. relationship where bonding is planned and carried out with the final objective of helping the patient to achieve the treatment goal. A positive therapeutic relationship encourages active participation of patient in the treatment plan, contributing to success of treatment goals and minimizing malpractice suits. The humanistic approach emphasizes the importance of love, belonging, self esteem, self expression and the final stage of self actualization-the drive to realize one's full potential. In person centered approach to therapeutic relationship, the three most fundamental elements are congruent (genuineness), unconditioned positive regards and empathy. In daily medical consultation, applying these elements can promote greater chance of success in the therapeutic process.

Key words: Doctor-patient relationship, Humanistic, Congruence, Positive regards, Empathy

Loh KY, Nalliah. Learning medical ethics in primary care clinic. J Med Edu 2008; 42: 1127-1128

Learning medical ethics in a primary care clinic

Keng Yin Loh* and Sivalingam Nalliah

¹International Medical University Malaysia, Jalan Rasah, 70300 Seremban, Malaysia

Abstract

The principles of medical ethics can be taught through didactic lectures in formal classroom teaching. However, students would appreciate the principles better if they were exposed to real-life clinical scenarios where issues related to medical ethics in clinical practice could be encountered. The Department of Family Medicine at the International Medical University, Malaysia has developed a structured and organised ethics learning programme for clinical students during the family medicine posting.

Loh KY, Shong HK, Lan SN, Lo WY, Woon SY. Risk factors for fragility fracture in Seremban District, Malaysia: a comparison of patients with fragility fracture in the orthopedic ward versus those in the outpatient department. *Asia Pac J Public Health* 2008 20(3): 251-257

Risk factors for fragility fracture in Seremban District, Malaysia: a comparison of patients with fragility fracture in the orthopedic ward versus those in the outpatient department

Keng Yin Loh, King Hock Shong, Soo Nie Lan, Wan-Yi Lo, Shu Yuen Woon

International Medical University, Malaysia

Abstract

Osteoporosis is a silent disease and becomes clinically significant in the presence of fragility fracture. Identifying risk factors that are associated with osteoporosis in the community is important in reducing the incidence of fragility fracture. The aim of this study is to identify risk factors associated with fragility fracture in the Seremban District of Malaysia. This is a population comparison study between orthopedic ward patients and outpatients attending a community health clinic for 6 months. Epidemiological data and the possible risk factors for osteoporosis were collected by direct interview. This study demonstrates that advancing age, low body weight, smoking, lack of regular exercise, low consumption of calcium containing foods, and using bone depleting drugs (steroids, thyroid hormone, and frusemides) are major risk factors for fragility fracture. Most of these risk factors are modifiable through effective lifestyle intervention.

Key words: fragility fracture; osteoporosis; risk factor; community; prevention

Loh LC, Lim BK, Raman S, Vilavasingham P, Mohde Yusuf S.
Budesonide/formoterol combination therapy as both maintenance and reliever medication in moderate-to-severe asthma: a real-life effectiveness study of Malaysian patients. *Med J Malaysia* 2008; 63(3): 188-192

Budesonide/formoterol combination therapy as both maintenance and reliever medication in moderate-to-severe asthma: a real-life effectiveness study of Malaysian patients

Loh LC, Lim BK, Raman S, Vijayasingham P, Mohd Yusuf S.

IMU Lung Research, International Medical University, Kuala Lumpur, Malaysia

Abstract

Budesonide/Formoterol (Symbicort) combination therapy as both maintenance and reliever treatment (SMART) is a novel approach in asthma management. We examined its 'real-life effectiveness' in treating Malaysian patients with moderate-to-severe asthma in whom despite on combined inhaled corticosteroids and long-acting beta2-agonist, were still inadequately controlled. In a retrospective study, 22 eligible adult patients on SMART [mean (range) age: 49 (36-65) years; FEV1: 41 (21-74)% predicted] were identified from medical records of an urban-based university hospital chest clinic, and their clinical outcomes studied at three months. Another 16 patients [50 (14-66) years; 48 (20-91)% predicted] of similar severity and treatment (i.e. Symbicort maintenance treatment plus short-acting beta2-agonist as reliever), but not on SMART, were used as comparator over the same assessment period. In addition, the patients were separately interviewed with standard questionnaire on their satisfaction and compliance to the SMART approach. In SMART group, rescue treatment requirement ($p < 0.001$) and FEV1 [median difference = 2.5%, $p = 0.015$; mean difference: 90 ml, $p = 0.013$] showed significant improvement while in comparator, there was significant improvement only in the requirement for rescue treatment ($p = 0.023$). Hospital admission rates were significantly reduced in SMART group compared to the other ($p = 0.039$), but not in emergency treatment. Five patients asked to discontinue SMART while all others were satisfied, compliant and perceived improvement of their asthma with SMART. The maximum daily doses of inhaled budesonide and formoterol were 1400 microg and 31.5 microg respectively. Our preliminary findings suggest that SMART approach can be attempted as an effective and safe treatment option for patients with inadequately controlled moderate-to-severe asthma in Malaysian setting.

Low BY, Liong ML, Yuen KH, Chee C, Leong WS, Chong WL, Khan NAK, Cheah PY, Liong KK. Terazosin therapy for patients with female lower urinary tract symptoms: a randomized, double-blind, placebo controlled trial. J Urol 2008; 179: 1461-1469

Terazosin therapy for patients with female lower urinary tract symptoms: a randomized, double-blind, placebo controlled trial

Bee Yean Low,* Men Long Liong, Kah Hay Yuen, Christopher Chee, Wing Seng Leong, Wooi Loong Chong, Nurzalina Abdul Kraim Khan, Phaik Yeong Cheah and Ker Keong Liong

School of Pharmaceutical Sciences, University of Science Malaysia (BYL, KHY, NAKK)
Department of Urology, Lam Wah Ee Hospital (MLL, WSL)
Penang, Department of Urology, Metro Hospital, Kedah (WLC)
International Medical University, Kuala Lumpur, Malaysia (KKL)
Clinical Trials & Research Governance, University of Oxford, United Kingdom (PYC)
Department of Urology, Specialist Medical Centre, New South Wales, Australia (CC)

Abstract

Purpose:

We determined the clinical efficacy and safety of terazosin in the treatment of patients with female lower urinary tract symptoms.

Materials and Methods:

A total of 100 females 20 to 70 years old who met the inclusion criteria of total International Prostate Symptom Score 8 or greater, symptom duration 1 or more months, and did not meet and exclusion criteria were entered into the study. Subjects were randomized to receive terazosin or placebo in titrated dose from 1 mg od, 1 mg twice daily to 2 mg twice daily during 14 weeks. Successful treatment outcomes use primary end point of International Prostate Symptom Score quality of life 2 or less and secondary end point of total International Prostate Symptom Score 7 or less. Other outcome measures included International Prostate Symptom Score individual item scores, King's Health Questionnaire quality of life domains, objective assessment parameters of 24 – hour frequency volume chart, maximum flow rate and post-void residual urine.

Results:

Using a primary end point, 32 of 40 (80%) evaluable terazosin subjects responded in contrast to 22 of 40 (55%) evaluable placebo subjects ($p < 0.02$). The secondary end point revealed a successful outcome in 85% of terazosin subjects vs 55% in placebo ($p < 0.01$). Of the 7 International Prostate Symptom Score individual item scores, only item scores of frequency and straining showed statistically significant reductions with terazosin ($p < 0.01$). All King's Health Questionnaire quality of life domains except domain of severity measures showed statistically significant improvement with terazosin ($p < 0.05$). There were no differences between treatment groups in all objective assessment parameters. Of all evaluable subjects 23 of 40 (58%) on placebo experienced adverse events vs 16 of 40 (40%) on terazosin ($p < 0.05$).

Conclusions:

Terazosin proved to be more effective and safe than placebo in patients with female lower urinary tract symptoms.

Key words: terazosine, drug therapy, urinary tract, clinical trial

Mapanga KG, Mapanga MB. A modern African perspective on the role of the clinical nurse specialist. Clin Nurse Specialist 2008; 22(5): 2026- 2030

A modern African perspective on the role of the clinical nurse specialist

Mapanga KG, Mapanga MB

Department of Nursing, International Medical University, Kuala Lumpur, Malaysia

Abstract

In Africa, there is an overwhelming and increasing prevalence of illnesses such as HIV and AIDS, tuberculosis, and malaria. This constitutes a "burden of disease" facing Africa. Nursing must evolve accordingly to the changing needs of clients, many of whom have chronic illnesses. In achieving desirable outcomes, it is essential to adopt and adapt the clinical nurse specialist (CNS) role so that expert and specialist practice is available to clients in a cost-effective manner. The role of the CNS singles out clinical responsibilities in a hospital setting so that nurse administrators can concentrate on the provision of resources. A CNS position in the hospital structure would offer a clinical career pathway for advanced practice nurses who wish to remain "by-the-bedside." Regional initiatives are already beginning to show a need for master's-prepared, advanced practice nurses in the clinical areas so as to reduce maternal mortality.

Key words: clinical nurse specialist function, modern nursing in Africa, specialist nursing outcomes

Mastura I, Teng CL. The effect of “Group Detailing” on drug prescribing in primary care. *Med J Malaysia* 2008; 63(4): 315-318

The effect of “Group Detailing” on drug prescribing in primary care

I Mastura*, CL Teng**

*Kuala Pilah Health Clinic, 7200 Kuala Pilah, Negeri Sembilan

**International Medical University, Seremban, Negeri Sembilan

Abstract

The quality of physician prescribing is suboptimal. Patients are at risk of potentially adverse reaction because of inappropriate or writing error in the drug prescriptions. We assess the effect of “group academic detailing” to reduce writing drug name using brand name and short form in the drug prescriptions in a controlled study at two primary health care clinics in Negeri Sembilan. Five medical officers in Ampangan Health Clinic received an educational intervention consisting of group academic detailing from the resident Family Medicine Specialist, as well as a drug summary list using generic names. The academic detailing focused on appropriate prescribing habit and emphasized on using the full generic drug name when writing the drug prescription. Analyses were based on 3371 prescriptions that were taken from two clinics. The other health clinic was for comparison. The prescribing rates were assessed by reviewing the prescriptions (two months each for pre- and post-intervention phase). Statistically significant reduction in writing prescription using brand name and using short form were observed after the educational intervention. Writing prescription using brand name for pre- and post-intervention phase were 33.9% and 19.0% (post-intervention vs pre-intervention RR 0.56, 95% CI 0.48 to 0.66) in the intervention clinic. Prescription writing using any short form for pre- and post-intervention phase were 49.2% and 29.2% (post-intervention vs pre-intervention RR 0.59, 95% CI 0.53 to 0.67). This low cost educational intervention focusing on prescribing habit produced an important reduction in writing prescription using brand name and short form. Group detailing appears to be feasible in the public health care system in Malaysia and possibly can be used for other prescribing issues in primary care.

Key words: Prescribing, Prescription writing, Academic detailing

Mitra NK, How HS, Nadarajah VD. Evaluation of neurotoxicity of repeated dermal application of chlorpyrifos on hippocampus of adult mice. *Ann Agric Environ Med* 2008; 15(2): 211-216

Evaluation of neurotoxicity of repeated dermal application of chlorpyrifos on hippocampus of adult mice

Nilesh K. Mitra^{1*}, How Hee Siong², Vishna D. Nadarajah¹

¹Senior Lecturer, Human Biology Department, International Medical University, Kuala Lumpur, Malaysia

²Research and Postgraduate Studies Department, International Medical University, Kuala Lumpur, Malaysia

Abstract

Dermal absorption of chlorpyrifos, an organophosphate insecticide is important because of its use in agriculture and control of household pests. The objectives of this study are to investigate firstly, the biochemical changes in the blood and secondly, histomorphometric changes in the hippocampus of adult mice following dermal application of chlorpyrifos in sub-toxic doses. Male Swiss albino mice (60 days) were segregated into one control and two treated groups (n=10). Chlorpyrifos, diluted with xylene, was applied in doses of 1/2 of LD(50) (E1) and 1/5 of LD(50) (E2) over the tail of mice of the two treated groups, 6 hours daily for 3 weeks. AChE levels in the serum and brain were estimated using a spectrophotometric method (Amplex Red reagent). Coronal serial sections were stained with 0.2 % thionin in acetate buffer and pyramidal neurons of Cornu Ammonis of hippocampus were counted at 400x magnification using Image Pro Express software. At the end of 3 weeks, body weights were reduced significantly in E1 group. Serum AChE concentrations were reduced by 97 % in E1 and 74 % in E2 groups compared to controls. The neurons of CA 3 and CA 1 in the hippocampus showed evidences of morphological damage in both treated groups. Furthermore, the neuronal count was significantly reduced in CA 3 layer of hippocampus in E1 group.

Key words: dermal toxicity, chlorpyrifos, repeated exposure, cholinesterase inhibition, hippocampus, histomorphometry.

Mitra NK, Nagaraja HS. Effect of chronic ethanol exposure on the count of cerebellar Purkinje cells and motor co-ordination in adult mice. *Eur J Anat* 2008; 12 (2): 67-71

Effect of chronic ethanol exposure on the count of cerebellar Purkinje cells and motor coordination in adult mice

Mitra N.K., Nagaraja H.S.

Human Biology Department, International Medical University, No. 126, Jalan 19/155B, Bukit Jalil 57000 Kuala Lumpur, Malaysia

Abstract

Ethanol-induced motor incoordination and subacute ataxia are widely reported. Damage to cerebellar Purkinje cells has not been described as a constant finding in studies addressing the alcoholic brain nor in experimental studies. The present study aimed to find out the changes in the count of cerebellar Purkinje cells and tests of motor coordination following chronic ethanol exposure in adult mice. Adult male mice were divided into control (C) and ethanol treated (E) groups (n = 10). The mice in group E were exposed to 10% ethanol ad libitum (v/v) for four months. Purkinje cells were counted per lobule and motor coordination was tested using rotarod. Mice were allowed to walk in the rotarod for 120 seconds and motor coordination was determined depending on the duration the animal walked on the rotarod. The t-test for independent samples was used to evaluate the data. Cerebellar weight was reduced in group E. A significant loss of Purkinje cells was found in lobules I to IV ($p < 0.0001$), but the two caudal lobules (V & VIII) showed less significant damage. Motor incoordination was significant ($p < 0.01$) after 3 months and increased progressively ($p < 0.001$) after 4 months. Chronic ethanol intake produces significant motor incoordination in adult mice, associated with a significant reduction in the count of Purkinje cells in the anterior lobe of cerebellum.

Key words: alcohol, alcohol consumption, alcohol intoxication, animal experiment, animal model, animal tissue, article, brain weight, cell count, cerebellar ataxia, cerebellum injury, controlled study, coordination disorder, long term exposure, male, motor coordination, mouse, nerve cell degeneration, nonhuman, Purkinje cell, rotarod test, walking

Mok PL, Cheong SK, Leong CF, Othman A. In-vitro expression of erythropoietin by transfected human mesenchymal stromal cells. *Cytotherapy* 2008; 10(2): 116-124

In vitro expression of erythropoietin by transfected human mesenchymal stromal cells

PL Mok¹, SK Cheong^{1,2}, CF Leong³ and A Othman³

¹Cellular Therapy Unit, MAKNA-HUKM, Cancer Institute, Kuala Lumpur, Malaysia

²Department of Medicine, International Medical University, Kuala Lumpur, Malaysia and

³Department of Pathology, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

Abstract

Background:

Mesenchymal stromal cells (MSC) are pluripotent progenitor cells that can be found in human bone marrow (BM). These cells have low immunogenicity and could suppress alloreactive T-cell responses. In the current study, MSC were tested for their capacity to carry and deliver the erythropoietin (EPO) gene in vitro.

Methods:

Expanded BM MSC was transfected with EPO-encoded plasmid pMCV1.2 and EPO-encoded MIDGE (minimalistic immunologically defined gene expression) vector by electroporation. The expressed EPO was used to induce hematopoietic stem cells (HSC) into erythroid colonies.

Results:

The results showed that the MIDGE vector was more effective and stable than the plasmid (pMCV1.2) in delivering EPO gene into MSC. The supernatants containing EPO obtained from the transfected cell culture were able to induce the differentiation of HSC into erythroid colonies.

Discussion:

MSC hold promise as a cell factory for the production of biologic molecules, and MIDGE vector is more effective and stable than the plasmid in nucleofection involving the EPO gene.

Key words: erythropoietin, lipofection, mesenchymal stromal cells, minimalistic immunologically defined gene expression (MIDGE), nucleofection, plasmid

Mok PL, Cheong SK, Leong CF. In-vitro differentiation study on isolated human mesenchymal stem cells. *Malaysian J Pathol* 2008; 30(1): 11-19

In-vitro differentiation study on isolated human mesenchymal stem cells

Mok, P.L., Cheong, S.K.*, Leong, C.F. **

Cellular Therapy Unit, MAKNA-HUMN Cancer Institute

*Department of Medicine, International Medical University

**Department of Pathology, University Kebangsaan Malaysia, Kuala Lumpur, Malaysia

Abstract

Mesenchymal stem cells are pluripotent progenitors that could be found in human bone marrow. Mesenchymal stem cells are capable of renewing themselves without differentiation in long-term culture. These cells also have low immunogenicity and can suppress alloreactive T cell responses. In the current study, mesenchymal stem cells isolated and propagated previously from the bone marrow of a megaloblastic anaemia patient were tested for their capabilities to differentiate into adipocytes, chondrocytes and osteoblasts in vitro. The differentiated cells were determined by Oil Red O, Alcian Blue-PAS and Alizarin Red S staining, and reverse transcriptase-polymerase chain reaction to determine the expression of mRNA specific for adipogenesis, chondrogenesis and osteogenesis. The results showed that the fibroblast-like cells were capable of differentiating into adipocytes, chondrocytes and osteoblasts upon chemical induction. The adipocytes, chondrocytes and osteoblasts were stained positively to Oil Red O, Alcian Blue-PAS and Alizarin Red S respectively. The differentiated cells were also found to express mRNA specific for adipogenesis ('peroxisome proliferation-activated receptor gamma2' and lipoprotein lipase), chondrogenesis (collagen type II) and osteogenesis (osteocalcin, osteopontin and alkaline phosphatase). In conclusion, this research has successfully isolated fibroblast-like cells from human bone marrow and these cells demonstrated morphological, cytochemical and immunochemical characteristics similar to mesenchymal stem cells. These cells maintain their proliferative properties and could be differentiated into the mesoderm lineage. The success of this study is vital because mesenchymal stem cells can be used in cellular therapy to regenerate or replace damaged tissues, or as a vehicle for therapeutic gene delivery in the future.

Key words: Mesenchymal stem cells, bone marrow, adipocytes, chondrocytes, osteoblasts

Clinical research in the International Medical University

Sivalingam Nalliah

International Medical University

Abstract

Clinical research refers to any field of research involving human subjects. Clinicians as researchers are well placed in contributing to research as they have access to human subjects and are able to apply research results for better patient outcome. The need for clinician-scientists as a dedicated breed is hence implied. Clinical research has low priority in the agenda of academic clinicians for various reasons. Strategies to overcome such a malady include training in research methodology and creating a permissive environment for the conduct of research. The IMU has introduced several measures to enhance clinical research and has a vibrant postgraduate program. The BMedSci programme has seen an increase in MBBS students taking this degree. Research is part of the curriculum before the Semester 7 examinations. Clinicians have been increasingly seen to be involved in research. The enhancement of clinical research through encouraging formal clinical research training and development of the MBBS-PhD programs could further enhance clinical research at the IMU. Attention to logistic constraints, improvement in collaboration with the CRC-MOH and other agencies and the close working relationship with scientist will propel clinical research to higher levels.

Key words: Clinical research, clinical methodology training, clinician-scientist, collaboration with scientists

Nalliah S, Murali Ganesalingam, Ravindran J. Simultaneous presence of pelvic endometriosis and polycystic ovary syndrome. *IeJSME* 2008; 2(2): 27-29

Simultaneous presence of pelvic endometriosis and polycystic ovary syndrome

Sivalingam N¹, Murali Ganesalingam², Ravindran J²

¹Department of Obstetrics and Gynecology, Clinical School, International Medical School, Jalan Rasah, Seremban, MALAYSIA

²Department of Obstetrics and Gynecology, Hospital Seremban, MALAYSIA

Abstract

The simultaneous presence of polycystic ovary syndrome with pelvic endometriosis presents compounded gynecological effects on women with subfertility and pelvic pain as the common symptoms. We describe one such case. The molecular basis for etiology is discussed and the need for individualized treatment is suggested.

Key words: Polycystic ovary syndrome, pelvic endometriosis, simultaneous presence

Ong CE, Pan Y, Tiong KH, Pook PCK, Mak JW, Yiap BC, Tan EL, Badrul Amini Abd-Rashid, Zakiah Ismail, Teh Lay Kek, Rusli Ismail. Pharmacogenomics in drug therapy and interaction: the role of cytochrome P450. *leJSME* 2008; S6-S10

Pharmacogenomics in drug therapy and interaction: the role of cytochrome P450

Chin-Eng Ong, Yan Pan, Kai-Hung Tiong, Beow-Chin Yiap, Eng-Lai Tan, Peter Pook, Joon-Wah Mak

School of Pharmacy and Health Sciences, International Medical University, Bukit Jalil 57000, Kuala Lumpur, MALAYSIA

Abstract

Pharmacogenomics (or pharmacogenetics), the study of the effects of genetic differences on a person's response to drugs, can help in optimizing drug efficacy and minimizing adverse drug reactions. Interperson difference in drug metabolism is one of the important consequences of such genetic variation. This variation is determined in part by mutations in cytochrome P450 enzymes (CYPs). IMU is part of a major collaborative research project in the area of pharmacogenetics and drug metabolism. Working together with USM and UiTM, our group has, since 2000, generated useful population database on genetic polymorphism of various CYP isoforms. We have successfully genotyped three major ethnic groups, Malay, Indian and Chinese for their allelic frequency of important isoforms. These include CYP2D6, CYP2C9, CYP2C8 and CYP2A6. Data generated so far collectively have contributed to our effort in mapping and constructing genomic database for Malaysian population.

Key words: Pharmacogenomics, pharmacogenetics, drug interaction, drug therapy, cytochromes P450

Palanisamy UD, Cheng HM, Theanmalar M, Thavamanithevi S, Ling LT, Radhakrishnan AK. Rind of the Rambutan, *Nephelium lappaceum*, a potential source of natural antioxidants. *Food Chemistry* 2008; 109:54-63

Rind of the Rambutan, *Nephelium lappaceum*, a potential source of natural antioxidants

Uma Palanisamy ^a, Cheng Hwee Ming ^b, Theanmalar Masilamani ^a,
Thavamanithevi Subramaniam ^a, Ling Lai Teng ^b, Ammu K. Radhakrishnan ^c

^a SIRIM Bhd, 1 Persiaran Dato Menteri, 40911 Shah Alam, Selangor Darul Ehsan, Malaysia

^b Universiti Malaya, Faculty of Medicine, University of Malaya, 59100 Kuala Lumpur, Malaysia

^c International Medical University, No. 126 Jalan 19/155B, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

Abstract

The rind of rambutan, which is normally discarded, was found to contain extremely high antioxidant activity when assessed using several methods. Although having a yield of only 18%, the ethanolic rambutan rind extract had a total phenolic content of 762 ± 10 mg GAE/g extract, which is comparable to that of a commercial preparation of grape seed extract. Comparing the extract's pro-oxidant capabilities with vitamin C, α -tocopherol, grape seed and green tea, the rind had the lowest pro-oxidant capacity. In addition, the extract at 100 μ g/ml was seen to limit oxidant-induced cell death (DPPH at 50 IM) by apoptosis to an extent similar to that of grape seed. The extracts were not cytotoxic to normal mouse fibroblast cells or splenocytes while the powderised rind was seen to have heavy metals contents far below the permissible levels for nutraceuticals. Our study for the first time reveals the high phenolic content, low pro-oxidant capacity and strong antioxidant activity of the extract from rind of *Nephelium lappaceum*. This extract, either alone or in combination with other active principles, can be used in cosmetic, nutraceutical and pharmaceutical applications.

Key words: *Nephelium lappaceum*; Rambutan; Free radical-scavenging activity; Phenolic content; Pro-oxidant; Nutraceuticals

Palayan K, Abdul Gani bin Muhammed Din, Radhakrishnan AK, Sivalingam Nalliah, Chan Tze Haw, Mei-Ling Young. The Senior Clerkship Program of the International Medical University is effective in facilitating the transition from student to doctor. J Med Edu 2008; 12: 96-106

The Senior Clerkship Program of the International Medical University is effective in facilitating the transition from student to doctor

Kandasami Palayan, Abdul Gani Bin Muhammed Din, Ammu Kutty Radhakrishnan, Sivalingam Nalliah, Chan Tze Hwa, Mei-Ling Young

International Medical University

Abstract

Background:

The transition, from a student to a doctor has been described as the weakest link in the entire chain of physician training. Failure of medical schools to provide adequate clinical exposure to common medical conditions, practical procedures and communication skills has been identified as important contributing factors. The International Medical University (IMU), has attempted to improve the transition from a student to a doctor by implementing an innovative program known as the "Senior Clerkship" in the final semester (semester 10) of its medical program. During the entire tenth semester, the students acquire knowledge, skills and attitudes by being "shadow" houseman under the supervision of the IMU academic staff.

Purpose:

The purpose of this study is to evaluate the effectiveness of the senior clerkship program by assessing the house officers (HO) during their first year after graduation as this could provide a good approximation of the overall quality of the IMU undergraduate education.

Methods:

The clinical competence and preparedness of 493 medical graduates for their performance as house-officers in three Malaysian public hospitals was evaluated by using two sets of questionnaire developed to assess the house officers' performance by their clinical supervisors. The data was then analyzed by comparing the ratings awarded to graduates who went through the senior clerkship program versus those that did not.

Results:

Our results showed that the clinical supervisors rated the clinical performance of the IMU graduates to be higher than all the other medical graduates. For communication skills and attitude, IMU graduates were rated slightly lower than graduates from Australia, Ireland and the United Kingdom but higher than graduates from the rest of the universities.

Conclusion:

The senior clerkship program has helped to improve the transition from student to houseman.

Key words: senior clerkship; medical graduates; housemanship

Perera J, Lee Nagarajah, Win Khin, Perera J, Wijesuriya LI. Formative feedback to students: the mismatch between faculty perceptions and student expectations. *Medical Teacher* 2008; 30(4): 395-399

Formative feedback to students: the mismatch between faculty perceptions and student expectations

Jennifer Perera^{1*}, Nagarajah Lee¹, Khin Win¹, Joachim Perera¹ and Lionel Wijesuriya¹

¹Department of Pathology, International Medical University, No 126, Jalan 19/155B, Bukit Jalil, 57000, Kuala Lumpur, Malaysia

Abstract

Background:

Formative assessments and other learning tools are ineffective in the absence of formative feedback.

Methods:

A study was carried out on preclinical students and teachers using mixed methods approach that included questionnaire surveys, focus group discussions and post survey discussions to determine perceptions and expectations of students on feedback and those of teachers.

Results:

Students expected formative feedback to be incorporated into all teaching activities from the beginning of the course in medicine to promote self regulated and self directed learning. Students stated that provision of model answers and grades in assessments are inadequate but require teacher student dialogue sessions to clarify issues. Students considered immediate feedback or feedback within two weeks on a written activity, simple but focused, by a content expert would be the best form. In contrast, the teachers perceived the feedback provided using a model answer by a non content expert to be acceptable. Students also believed that formative feedback is of particular importance in salvaging poor performers.

Conclusions:

There is a need to create awareness among teachers on the usefulness of this tool in higher education and for moulding teaching practices by including training on this aspect of teaching-learning, in routine faculty development activities. The study showed the importance of including feedback as a generic feature in all learning activities, and this may require incorporating into institutional policy for successful implementation.

Radhakrishnan AK, Lee AL, Wong PK, Kaur J, Aung H, Nesaretnam K. Comparable effects on immune modulation following daily supplementation with tocotrienol-rich fraction (TRF) or alpha-tocopherol in normal human volunteers. *Brit J Nutrition* 2008; 15: 1-6

Comparable effects on immune modulation following daily supplementation of tocotrienol-rich fraction or α -tocopherol did not induce immunomodulatory changes in healthy human volunteers

Ammu K. Radhakrishnan¹, Ai-Ling Lee¹, Pak-Fong Wong², Jagmohni Kaur³, Htin Aung³ and Kalanithi Nesaretnam⁴

¹ Department of Pathology, International Medical University, 126, Jalan 19/155B, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

² Department of Nursing, International Medical University, 126, Jalan 19/155B, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

³ Clinical Skills Unit, Faculty of Medicine, Pharmacy and Health Sciences, International Medical University, 126, Jalan 19/155B, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

⁴ Department of Nutrition, Malaysian Palm Oil Board, 6, Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor Darul Ehsan, Malaysia

Abstract

Vitamin E is divided into two subgroups; tocopherols and tocotrienols. Both have protective roles in biological systems. The present study was conducted to compare the effect of short-term supplementation at 200 mg/d of either α -tocopherol or a tocotrienol-rich fraction (TRF) from palm oil on immune modulation and plasma vitamin E levels in normal healthy Asian volunteers. In a randomised, double-blind placebo-controlled trial conducted, fifty-three healthy volunteers aged 20–50 years were recruited based on the study's inclusion and exclusion criteria. They were randomly assigned into three groups, i.e. two experimental groups that received daily supplementation at 200 mg of either α -tocopherol or the TRF, and the control group that received a placebo. Blood was drawn on days 0, 28 and 56 for several laboratory analyses. Differences in the production of IL-4 or interferon- γ by concanavalin A-stimulated lymphocytes isolated from these volunteers were not significant ($P > 0.05$). There were no significant differences observed in immune parameters between the healthy volunteers who received daily supplementation with either α -tocopherol or the TRF. As these observations were made in the absence of any immunogenic challenge, we feel it would be of benefit to study if there would be any differences observed when an immunogenic challenge such as vaccination were introduced.

Key words: Vitamin E; α -Tocopherol; Tocotrienol-rich fraction; Cytokines; Immune system

Reddy SC, I Tajinisah, K P Low, A B Karmila. Prevalence of eye diseases and visual impairment in urban population – a study from University of Malaya Medical Centre. *Fam Physician* 2008; 3: 25-28

Prevalence of eye diseases and visual impairment in urban population – a study from University of Malaya Medical Centre

SC Reddy^{1,2}, I Tajunisah², KP Low³, AB Karmila³

¹Department of Ophthalmology, International Medical University, Clinical School, Jalan Rasah, 70300 Seremban, Negeri Sembilan, Malaysia

²Department of Ophthalmology, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia

³Phase II Medical students, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia

Abstract

One thousand one hundred and sixty-nine (1169) patients were examined in the Eye Clinic of University of Malaya Medical Centre over a period of three weeks to determine the prevalence of eye diseases and visual impairment. Age, gender, race, visual acuity and diagnosis of patients were noted from the case records. Cataract (385, 32.9%) was the most common eye disease seen in our study followed by glaucoma (274, 23.4%). Refractive errors were seen in 126 (10.8%) while diabetic retinopathy was noted in 113 (9.7%) patients. One hundred and fifteen (9.6%) patients had visual impairment and 11 (0.9%) had blindness in our study according to WHO classification of visual impairment. Refractive errors are the most common causes of visual impairment in children, while cataract, glaucoma and diabetic retinopathy account for visual impairment in elderly people. All these eye diseases are treatable and the severe eye conditions may be potentially preventable with early diagnosis.

Key words: Eye diseases, visual impairment, cataract, glaucoma, corneal diseases, diabetic retinopathy.

S Sulaiha SA, Nazimah I. Prenatal screening for fetal anomalies: the Malaysian perspective. *Mal J Obstet Gynecol* 2008; 8(16): 1-10

Prenatal screening for fetal anomalies: the Malaysian perspective

Aznal SS, Idris N.

Department of Obstetrics & Gynaecology, International Medical University of Malaysia, Rasah, Seremban, Negeri Sembilan

Abstract

Prenatal screening and diagnostic testing is a highly contentious issue as it evokes different emotions and sensitivities among prospective parents and practitioners. There are also the legal and ethical issues to be considered. Presently, there is no uniformity among practitioners in Malaysia in their approach to offering these tests to prospective parents. Not all practitioners have the appropriate level of knowledge and skills to perform the test. Hence, many are ill-equipped to advise the prospective parents as to the best tests to do under specific circumstances, its limitations and subsequent management options.

In our pluralistic society, there are some who consider termination of pregnancy for abnormal fetuses to be wrong. Therefore, the detection of abnormality that leads to the termination of pregnancy is also viewed as complicit to the termination and therefore equally wrong. On the other hand, medical practitioners have a duty to provide information that such tests are available and prospective parents can make the final decision with regards to termination of pregnancy. Therefore, it is pertinent that medical practitioners have good comprehension on issues related to prenatal screening.

In a woman above 35 years of age, the risk of chromosomal anomalies based on maternal age alone is high and rises continuously as her age increases (1:180-200 risk ratios at age >35 and 1:80-86 risk ratio at age > 40 years) according to Hook et al (1983). However, it must be emphasized that age alone is a poor predictor of risk. Therefore, a nuchal

Key words: Prenatal screening tests, First trimester screening, Nuchal translucency, serum markers, triple test

Seow LL, Toh CG, Wilson NHF. A finite element analysis of ceramic restorations in endodontically treated premolars. *Am J Dentistry* 2008; 21: 331-336

A finite element analysis of ceramic restorations in endodontically treated premolars

Seow LL,¹ Toh CG, Fok AS, Wilson NH

¹School of Dentistry, International Medical University, 126, Jalan 19/155B, Bukit Jalil, Kuala Lumpur, Malaysia

Abstract

Purpose:

To investigate the level and distribution of stresses in endodontically treated maxillary premolar teeth restored using various cavity designs of bonded all-ceramic restorations. The hypothesis tested was that the various all-ceramic approaches, including incorporating a pulp chamber extension in the restoration, had no influence on the stresses in the restored tooth unit.

Methods:

Finite element packages Patran and Abaqus were used for the stress analysis. The cavity designs investigated include: (1) inlay (I); (2) inlay with palatal cusp coverage (IPC); (3) onlay (O); (4) inlay with pulp chamber extension (IPE); (5) inlay with palatal cusp coverage and pulp chamber extension (IPCPE); and (6) onlay with pulp chamber extension (OPE).

Results:

In each case, tensile stresses were found to be concentrated subjacent to the occlusal fossa. Peak tensile stress and peak shear stress values along the tooth/restoration interface for IPC, O IPCPE and OPE cavity designs were found to be associated with the axiokingival line angle. Overall, the order of the various forms of restoration investigated in terms of the maximum principal stress (from greatest to lowest) was as follows: IPE > IPCPE > OPE > I > IPC > O.

Seow LL, Chong SY, Lau MN, Tiong SG, Yew CC. Effect of beverages and food source on wear resistance of composite resins. *Malaysian Dental J* 2008; 29(1): 34-39

Effect of beverages and food source on wear resistance of composite resins

Seow LL, Chong SY, Lau MN, Tiong SG, Yew CC

School of Dentistry, International Medical University, Kuala Lumpur, Malaysia

Abstract

Certain beverages e.g. coffee, tea, soft drinks, fruit juices, alcoholic beverages, may affect the physical properties of composite resins. Objectives: The objectives of this study were to: (1) evaluate the effect of different beverages and chilli sauce on the wear resistance of composite resins, (2) evaluate effect of the duration of immersion in the beverages and chilli sauce on the wear resistance of composite resins. Materials and methods: Disc specimens were fabricated using two different types of composite resins: (i) Filtek Z350 (3M ESPE, USA, nano-filled composite, 40 specimens) and (ii) Solare P (GC Dental Products Corp, Japan, microhybrid composite, 40 specimens). After polymerization, all the specimens were polished using Enhance Polishing System (Dentsply International Inc., USA). The specimens were air-dried before weighing using Sartorius BP 221S weighing balance (Sartorius AG, Goettingen, Germany). Ten specimens from each type of composite were immersed in distilled water (control group), Coca colar, orange juice (Peel Freshr) and chilli sauce (Maggir) respectively. The duration of immersion was 6 hours and 1 week. A reciprocal compression-sliding system was used to evaluate the wear resistance of the specimens. The specimens were moved back and forth with a loaded counter-body (235g) against sand paper (P1000, 3M ESPE, USA) in running water. The weight of the specimens were measured after 6 hours of immersion and 20,000 wear cycles and also at 1 week of immersion with further 20,000 wear cycles. The wear resistances were tabulated as percentage of weight loss from the specimens. Results were statistically analyzed using one way ANOVA and post-hoc Tukey's test ($p= 0.05$). Results: The results showed that Solare P has significantly lower wear resistance compared to Filtek Z350. There was no significant difference in wear resistance for Filtek Z350 when immersed in chili sauce, Coca-colar and orange juice in comparison with control group for 6 hours and 1 week. Similar findings were observed for Solare P. Conclusion: Within the limitations of this study, it was concluded that Solare P has poorer wear resistance than Filtek Z350. The soaking medium investigated and duration of immersion have no influence on the wear resistance of Solare P and Filtek Z350.

Singh R, Ting JG, Pan Y, Teh LK, Ismail R, Ong CE. Functional role of Ile264 in CYP2C8: mutations affect haem incorporation and catalytic activity. *Drug Metab Pharmacokinet* 2008; 23: 165-174

Functional role of Ile264 in CYP2C8: mutations affect haem incorporation and catalytic activity

Rajinder SINGH¹, Jonathan G. TING¹, Yan PAN¹, Lay Kek TEH², Rusli ISMAIL³ and Chin Eng ONG¹

¹School of Pharmacy and Health Sciences, International Medical University, Kuala Lumpur, Malaysia

²Faculty of Pharmacy, Universiti Teknologi MARA, Selangor, Malaysia

³Pharmacogenetics Research Group, Institute for Research in Molecular Medicine, Universiti Sains Malaysia, Kelantan, Malaysia

Abstract

The work described in this study aimed to express CYP2C8 wild-type and mutant proteins in bacterial expression system and to use the expressed proteins to investigate the structural and functional consequences of a reported allele CYP2C8*4 (carrying Ile264Met substitution) on protein activity. Ile264 was replaced by three different amino acids resulting in three mutant constructs, 2C8I264M, 2C8I264R and 2C8I264D. The presence of isoleucine at position 264 in CYP2C8 was found to be important for proper haem insertion and protein folding; whereas bulkier or charged residues were highly disruptive resulting in inactive proteins with minimum spectral and catalytic activities. This was evidenced from the low levels of Soret peak at 450 nm and negligible levels of tolbutamide methylhydroxylase activity. Kinetic study using paclitaxel indicated that all three mutants exhibited only 9.7 to 35.4% of the activity level observed in the wild-type. In addition, the mutants were more sensitive to proteinase K digestion, indicating a possible alteration of conformation. The combined effects of protein instability and compromised catalytic activity resulted in defective CYP2C8 protein which may have clinical implications in carriers of CYP2C8*4, particularly in terms of their capacity to clear potent drugs and their susceptibility to adverse drug reactions.

Key words: genetic polymorphism; CYP2C8*4; site-directed mutagenesis; paclitaxel; pharmacogenomics

Tan KL, Yadav H. Reassessment on the development of children with disability in Malaysia. Med J Malaysia 2008; 63(1): 17-20

Reassessment on the development of children with disability in Malaysia

K L Tan, MPH¹, H Yadav, FAMM²

¹Department of Social and Preventive Medicine, University of Malaya, Kuala Lumpur,

²Department of Community Medicine and Behavioural Science, International Medical University, Kuala Lumpur

Abstract

This is a cohort study investigating the profile of children with disability registered with the primary health care clinics in Malaysia. The purpose of the study was to determine whether reassessment on the development of children with disability under rehabilitation should be done at three months interval or six months interval. Secondary data from the pilot project conducted by the Family Health Development Division, Ministry of Health Malaysia was used in this study. The study was carried out for seven months from 1st August 2004 until 28th February 2005. A total of 168 disabled children followed up for six months were selected in this study. Schedule of Growing Scale (SGS) II was the tool used for analysis. Results showed a statistically significant difference in the mean total SGS score at six months interval but not at three months interval. The result suggests that reassessment on children with Down Syndrome, Autism, Cerebral Palsy, mental retardation and delayed speech under rehabilitation should be carried out every six months while children with gross developmental delay and slow learner might need a longer interval for reassessment.

Key words: Developmental Reassessment, Child Disability, Schedule of Growing Scale (SGS) II

Tan KL, Yadav H. Assessing the development of children with disability in Malaysia. Med J Malaysia 2008; 63(3): 199-202

Assessing the development of children with disability in Malaysia

K L Tan, MPH, H Yadav, FAMM

Department of Community Medicine and Behavioural Science, International Medical University, Kuala Lumpur, Malaysia

Abstract

This is a cross-sectional study investigating the profile of children with disability registered with the primary health care clinics in Malaysia. The purpose of the study was to assess the developmental stage of children with disability. Secondary data from the pilot project conducted by the Family Health Development Division, Ministry of Health Malaysia was used in this study. The study period was for six months from 1st August 2004 until 31st January 2005. A total of 900 disabled children were selected in this study. Schedule of Growing Scale (SGS) II was used for analysis. Results showed more boys than girls were affected with a ratio of 6:4. The mean total SGS score increases as the age of the child increased. The score was highest in delayed speech cases and lowest in cerebral palsy cases. The performance among children with delayed speech was the highest while children with cerebral palsy were the lowest. There was a statistically significant difference between the major ethnic groups in delayed speech and attention deficit hyperactive disorder.

Key words: Developmental Assessment, Child Disability, Schedule of Growing Scale (SGS) II

Teng CL, Ng CJ, Nik-Sheina H, Zalinawati AH, Tong SF. The accuracy of mother's touch to detect fever in children: a systematic review. *J Trop Paediatr* 2008; 54(1): 70-73

The accuracy of mother's touch to detect fever in children: a systematic review

C. L. Teng^{1*}, C. J. Ng², H. Nik-Sherina², A. H. Zailinawati³ and S. F. Tong⁴

¹Department of Family Medicine, International Medical University, Seremban, Negeri Sembilan, Malaysia

²Department of Primary Care Medicine, University of Malaya, Kuala Lumpur, Malaysia

³Klinik Keluarga, Kuala Lumpur, Malaysia

⁴Department of Family Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

Abstract

Universally, mothers often use touching to detect fever in their children. We perform a systematic review of published diagnostic studies evaluating the ability of mothers to detect fever in their children by touching. We found 10 studies satisfying our inclusion criteria. The meta-analysis revealed a summary sensitivity of 89.2% and summary specificity of 50%—maternal touch is perhaps more useful to exclude fever rather than to 'rule in' fever. However, due to significant heterogeneity in the included studies, interpretation of the summary data is difficult.

Key words: fever, mother, palpation, children, systematic review

Thanikachalam MP, Kasemsuk Y, Mak JW, Sharifah Emilia TS, Palayan K. A study of parasitic infections in the luminal contents and tissue sections of appendix specimens. *Trop Biomed* 2008 Aug; 25(2): 166-172

A study of parasitic infections in the luminal contents and tissue sections of appendix specimens

Thanikachalam M Pasupati¹, Kasemsuk Yothasamutr¹, Mak Joon Wah¹, Sharifah Emilia Tuan Sherif² and Kandasamy Palayan³

¹Pathology Section, International Medical University, Kuala Lumpur, Malaysia

²Pathology Dept. Hospital Patu Pahat, Batu Pahat, Johor Baru, Malaysia

³Clinical School, International Medical University, Seremban, Malaysia

Abstract

Appendicitis has a worldwide prevalence and affects all age groups. The aetiology of acute appendicitis is still much debated, many factors have been implicated. The pathology is likely to be due to obstruction of the lumen of the appendix. Parasites, both helminths and protozoa have been suggested to be the cause of acute appendicitis. Studies have demonstrated that parasites are present in the appendix specimens removed from surgery methods.

Wong CY, Cheong SK, Mok PL, Leong CF. Differentiation of human mesenchymal stem cells into mesangial cells in post-glomerular injury murine model. *Pathol* 2008; 40(1): 52-57

Differentiation of human mesenchymal stem cells into mesangial cells in post-glomerular injury murine model

Chee-Yin Wong¹, Soon-Keng Cheong^{2*}, Pooi-Ling Mok¹ and Chooi-Fun Leong¹

¹Cellular Therapy Unit, MAKNA-HUKM Cancer Institute, Hospital UKM, Kuala Lumpur

²Department of Internal Medicine, Clinical School, International Medical University, Kuala Lumpur Malaysia

Abstract

Aims:

Adult human bone marrow contains a population of mesenchymal stem cells (MSC) that contributes to the regeneration of tissues such as bone, cartilage, muscle, tendon, and fat. In recent years, it has been shown that functional stem cells exist in the adult bone marrow, and they can contribute to renal remodelling or reconstitution of injured renal glomeruli, especially mesangial cells. The purpose of this study is to examine the ability of MSC isolated from human bone marrow to differentiate into mesangial cells in glomerular injured athymic mice.

Methods:

MSC were isolated from human bone marrow mononuclear cells based on plastic adherent properties and expanded in vitro in the culture medium. Human mesenchymal stem cells (hMSC) were characterised using microscopy, immunophenotyping, and their ability to differentiate into adipocytes, chondrocytes, and osteocytes. hMSC were then injected into athymic mice, which had induced glomerulonephropathy (GN).

Results:

Test mice (induced GN and infused hMSC) were shown to have anti-human CD105⁺ cells present in the kidneys and were also positive to anti-human desmin, a marker for mesangial cells. Furthermore, immunofluorescence assays also demonstrated that anti-human desmin⁺ cells in the glomeruli of these test mice were in the proliferation stage, being positive to anti-human Ki-67.

Conclusions:

These findings indicate that hMSC found in renal glomeruli differentiated into mesangial cells in vivo after glomerular injury occurred.

Key words: Renal, histopathology, mesenchymal stem cell, mesangial cell, in vivo differentiation

Wong SF, Mak JW, Pook PCK. Potential use of a monoclonal antibody for the detection of Candida antigens in an experimental systemic candidiasis model. *Hybridoma (Larchmt)*. 2008; 27(5): 361-373

Potential use of a monoclonal antibody for the detection of candida antigens in an experimental systemic candidiasis model

Wong SF, Mak JW, Pook CK.

International Medical University, Kuala Lumpur, Malaysia

Abstract

The *Candida* species are the most common fungal pathogens of systemic candidiasis. The diagnosis of invasive candidiasis remains a laboratory and clinical challenge. Thus, development of diagnostic assays to detect systemic candidiasis and to identify *Candida* virulence factors and associated pathogenesis through immunohistochemistry using specific monoclonals and polyclonals will be useful. Inbred Balb/c mice were immunized with *C. albicans* antigens, and blood was checked for the presence of reactive antibodies using ELISA. Fusion was performed using the harvested spleen cells and NS1 myeloma cells, and the clones were screened for the presence of antibody producing hybrid cells by dot-blot. Western blot analysis showed that the L2D10 monoclonal antibody was reactive against the antigens with molecular weight of 20 kDa. Experimental systemic candidiasis in mice was induced through intravenous injection of *C. albicans* and all the vital organs were collected for immunohistochemistry study. The monoclonal antibody reacted to surface epitopes on the yeast cells, germ tubes, and hyphae, and to immune complexes. It was used with the polyclonal antibody in a sandwich ELISA for the detection of circulating antigens in experimental candidiasis in mice. Antibody levels were also determined using the ELISA method, and the antibody levels of *C. albicans* infected mice were increased compared with uninfected animals. The monoclonal antibody was used in immunoperoxidase and immunofluorescence techniques for the detection of fungal infection in tissue sections and was found to be more sensitive than conventional periodic acid Schiff or silver staining techniques. This monoclonal antibody may serve as potential primary capture antibodies for the development of a rapid diagnostic test for human systemic fungal infection.

Yiap BC, Radhakrishnan AK, Varma NRS. DSN1 deletion is deleterious to the *Saccharomyces cerevisiae* while Dsn1p disrupts nuclear segregation process of Chinese Hamster Ovary cell. *African J Biotechnol* 2008; 7(14): 2315-2320

DSN1 deletion is deleterious to the *Saccharomyces cerevisiae* while Dsn1p disrupts nuclear segregation process of Chinese Hamster ovary cell

Beow Chin Yiap¹, A .K. Radhakrishnan² and Nadimpalli Ravi S. Varma^{3*}.

¹School of Pharmacy and Health Sciences, Faculty of Medicine and Health, International Medical University, No. 126, Jalan 19/155B, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

²Department of Pathology, Faculty of Medicine and Health, International Medical University, No. 126, Jalan 19/155B, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

³Department of Biological and Agriculture Engineering, University of California, Davis, 95616, California, USA

Abstract

Dsn1p is a component of the mind complex (Mtw1p Including Nnf1p-Nsl1p-Dsn1p) that is essential for the segregation of chromosome in yeast cells. This protein assists the joining of kinetochore subunits contacting DNA to those contacting microtubules in yeast cells. Null mutants of this protein are not viable while the over-expression of the Dsn1 protein in yeast cells results in nuclear anomalies and growth defects. In this paper, we show that tetrad analysis indicates haplo-insufficiency and segregational errors in yeast diploid single deletants. Expression of Dsn1p in CHO has been achieved using the pcDNA 3.1/HIS A expression vector. Analysis by DNA sequencing showed no changes in the DSN1 DNA sequence. We also showed that nuclear fragmentation and cellular morphological changes takes place in CHO cell line that were successfully transfected with the pcDNA 3.1/HIS A expression vector containing the Dsn1p.

Key words: *Saccharomyces cerevisiae*, kinetochore, Dsn1p, Chinese Hamster Ovary (CHO)

Yiap BC, Raha AR, Radhakrishnan AK. *Saccharomyces cerevisiae* kinetochore protein rDsn1p induced apoptosis in Chinese Hamster ovary cells. *Asia Pacific J Mol Biol Biotechnol* 2008; 16(3): 71-77

Saccharomyces cerevisiae kinetochore protein (rDsn1p) induced apoptosis in Chinese Hamster ovary cells

Yiap Beow-Chin^{1*}, Raha Abdul-Rahim² and Radhakrishnan AK³

¹ School of Pharmacy and Health Sciences, Faculty of Medicine, Pharmacy and Health Sciences, International Medical University, No. 126, Jalan 19/155B, Bukit Jalil, 57000 Kuala Lumpur

³Department of Pathology, Faculty of Medicine, Pharmacy and Health Sciences, International Medical University, No. 126, Jalan 19/155B, Bukit Jalil, 57000 Kuala Lumpur

²Department of Bioprocess Technology, Faculty of Biotechnology and Biomolecular Sciences, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor Darul Ehsan.

Abstract

Dsn1p is a member of the MIND complex that forms part of the yeast kinetochore, which is essential for the proper chromosomal segregation during cell division. Its functionality is gene dosage dependent and it has characteristics of haploinsufficiency. Bioinformatics alignments predicted the existence of nuclear homologues in higher eukaryotic organisms. Literature on the possibility of Dsn1p being a functional homologue of these organisms is scarce. In this study we employed recombinant DNA expression technology to explore whether Dsn1p can function in a mammalian cell line, Chinese Hamster Ovary (CHO).

Expression of rDsn1p in CHO cells induced cytopathic effects including changes in cellular morphology and cell size. Inhibition of cell growth was observed at the beginning the fourth post-transfection week. The recombinant CHO cell culture showed cytotoxic effects following the accumulation of the Dsn1p, resulting in apoptotic cell death; as evidenced by the presence of nuclear fragmentation and surface blebbing in the dying cells. This suggests that rDsn1p may interact with the counterpart/ligand of the nuclear homologue of this protein in CHO cells, resulting in nuclear anomalies and inhibition of cell growth, as observed in our previous study using yeast cells.

Key words: *Saccharomyces cerevisiae*, kinetochore, Dsn1p, apoptosis, Chinese Hamster Ovary (CHO)