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| 9   | Chakravarthi S, Linda Tjoa Husin, Thanikachalam PM, Bukhari NI. A study of the significance of apoptosis and its association with abnormalities in expression of BCL-2 Proto-Oncogene in benign nodular hyperplasia of prostate. Res J Biol Sci 2009; 4(7): 836-841 | 16   |

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| 14  | Cho Naing, Abba K, Garner P, Daw Khin Win, Mala-Maung, Deeks JJ, Olliaro P. Immunochromatography based rapid diagnostic tests for diagnosing uncomplicated malaria in endemic countries. <i>Cochrane Database of Systematic Reviews</i> 2009 (DOI: 10.1002/14651858.CD008122)  | *    |
| 15  | Chong FW, Chakravarthi S, Nagaraja HS, Thanikachalam PM, Nagarajah Lee. Expression of transforming growth factor- $\beta$ and determination of apoptotic index in histopathological sections for assessment of the effects of Apigenin (4',5',7'- trihydroxyflavone) on Cyclosporine A induced renal damage. <i>Malaysian J Pathol.</i> 2009; 31(1): 35-43 | 20   |
| 16  | Chu WL, See YC, Phang SM. Use of immobilised <i>Chlorella vulgaris</i> for the removal of colour from textile dyes. <i>J Appl Phycol</i> 2009; 21: 641-648   | 21   |
| 17  | Chowdhury EH. Nuclear targeting of viral and non-viral DNA. <i>Expert Opin Drug Deliv</i> 2009; 6(7): 697-703  | 22   |
| 18  | Das Gupta E, Zailinawati AH, Lim AW, Chan AB, Yap SH, Hla-Yee-Yee, Kamil MA, Teng CL. Are Indians and females less tolerant to pain? An observational study using a laboratory pain model. <i>Med J Malaysia</i> 2009; 64(2): 111-113  | 23   |
| 19  | Das Gupta E. Common laboratory tests for rheumatological disorders: how do they help the diagnosis? <i>Malaysian Fam Physician</i> 2009; 4(2&3):48-50  | 24   |

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| 21         | Haneline M. Re: Gouveia LO, Castanho P, Ferreira JJ. Safety of chiropractic interventions: a systematic review [Letter to Editor]. <i>Spine</i> 2009; 34(11): E405-13; <i>Spine</i> 2009 Oct 15; 34(22): 2475-2476  | *           |
| 22         | Haneline M, Cooperstein R. Outcomes of a practice-based feasibility study of chiropractic care for patients with acute neck pain. <i>J Chiropractic Med</i> 2009; 8(4):143-155  | 26          |
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| 24         | Koh KC, Husni S, Tan JE, Tan CW, Kunaseelan S, Nuriah S, Ong KH, Morad Z. High prevalence of Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) on doctors' neckties. <i>Med J Malaysia</i> 2009; 64: 233-235  | 29          |
| 25         | Kutsuzawa K, Tada S, Hossain S, Fukuda K, Maruyama K, Akiyama Y, Akaike T, Chowdhury EH. Disrupting actin filaments promotes efficient transfection of a leukemia cell line using cell adhesive protein-embedded carbonate apatite particles. <i>Anal Biochem</i> 2009; 388(1):164-166            | 30          |
| 26         | Lai NM, Chaiyakunapruk N, Pau W, Lai NA, Saint S, O'Riordan L. Catheter impregnation, coating or bonding for reducing central venous catheter related infections in adults (A Cochrane protocol). <i>The Cochran eLibrary</i> , issue 3, 2009. Art. No.: CD007878. DOI: 10.1002/14651858.CD007878 | *           |
| 27         | Lai N, Nalliah S, Jutti RC, Hla-Yee-Yee, Lim VKE. The educational environment and self-perceived clinical competence of senior medical students in a Malaysian Medical School. <i>Educ for Health</i> 2009; 22: 1-15  | 31          |
| 28         | Lai NM, Teng CL. Competence in evidence-based medicine of final-year medical students following a clinically oriented training programme. <i>Hong Kong Med J</i> 2009; 15(5): 31-38   | 32-33       |
| 29         | Lai Teng Ling, Su-Ann Yap, Radhakrishnan AK, Thavamanithevi Subramaniam, Hwee Ming Cheng, Uma D. Palanisamy. Standardised <i>Mangifera indica</i> extract is an ideal antioxidant. <i>Food Chem</i> 2009; 113: 1154-1159  | 34          |

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|-----|---|-------|
| 30  | Lee HL, Er HM, Radhakrishnan AK. In vitro anti-proliferative and antioxidant activities of stem extracts of <i>Pereskia bleo</i> (Kunth) DC (Cactaceae). <i>Malaysian J Sci</i> , 2009; 28(3):225-239   | 35    |
| 31  | Leong CF, Aini-Ardana M, Cheong SK, Norris N. Effect of pyridostigmine (Mestinon) on human platelet aggregation. <i>Malaysian J Pathol</i> 2009; 31(1): 45-52   | 36    |
| 32  | Liew SM, Tong SF, Lee VKM, Ng CJ, Leong KC, Teng CL. Text messaging reminders to reduce non-attendance in chronic disease follow-up: a clinical trial. <i>Brit J Gen Pract</i> 2009; 59: 916-920  | 37-38 |
| 33  | Lim LY, Vidnovic N, Ellisen LW, Leong CO. Mutant p53 mediates survival of breast cancer cells. <i>Brit J Cancer</i> 101(9): 1606-1612   | 39    |
| 34  | Lim PH. Criticality of tasks in a staff nurse's work profile. <i>J Malaysian Nurses Association</i> 2009; 19-23, ISSN 1823-8661   | 40    |
| 35  | Lim VKE. Occupational infections. <i>Malaysian J Pathol</i> 2009; 31: 1-9   | 41    |
| 36  | Loh DSY, Er HM, Chen YS. Mutagenic and antimutagenic activities of aqueous and methanol extracts of <i>Euphorbia hirta</i> . <i>J Ethnopharmacol</i> 2009; 126: 406-414   | 42    |
| 37  | Loh KY, Kwa SK. An innovative method of teaching clinical therapeutics through role-play. <i>Med Educ</i> 2009; 43: 1101-1102   | *     |
| 38  | Marshall AG, McCarthy MM, Brishnehan KM, Rao V, Batia LM, Gupta M, Das S, Mitra NK, Chaudhuri JD. Effect of gestational ethanol exposure on parvalbumin and calretinin expressing hippocampal neurons in a chick model of fetal alcohol syndrome. <i>Alcohol</i> 2009; 43(2): 147-161 | 43    |
| 39  | Mitra NK, How HS, Nadarajah VD. Effect of concurrent application of heat, swim stress and repeated dermal application of chlorpyrifos on the hippocampal neurons in mice. <i>Folia Neuropathol</i> 2009; 47(1): 60-68   | 44    |
| 40  | Montazeri S, Nalliah S, Radhakrishnan AK, Zainur Rashid Z, Kumar K. Maternal and fetal outcome in treated gestational diabetes mellitus. <i>Mal J Obstet Gynaecol</i> 2009; 8(17):11-24   | 45    |

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| 41  | Nadarajah VD, Richard GLY, Min, Judson JP, Ravindran Jegasothy, Elena HP Ling. Maternal plasma soluble fms-like tyrosine kinase-1 and placental growth factor levels as biochemical markers of gestational hypertension for Malaysian mothers. <i>J Obstet Gynaecol Res</i> 2009; 35(5): 855-863 | 46   |
| 42  | Nagaraja HS, Radhakrishnan AK, Lee H, Kumar P. Flavonoid quercetin protects against swimming stress-induced changes in oxidative biomarkers in the hypothalamus of rats. <i>Eur J Pharmacol</i> 2009; 621: 46-52   | 47   |
| 43  | Nagaraja HS, Tan Mun Yee, Chakravarthi S, Nagarajah L. Protective effect of N-acetylcysteine on cyclosporine A induced changes in lipid hydroperoxide levels and renal dysfunction in rats. <i>Arch Med Sci</i> 2009; 5(1): 16-22  | 48   |
| 44  | Nagaraja HS, Ravinder Jassal, Chakravarthi S, Thanikachalam PM, Nagarajah L, Anupama BK. Apigenin reduces Cyclosporine - A induced changes in lipid hydroperoxides and total antioxidants in Sprague-Dawley rats. <i>J Chinese Clin Med</i> 2009; 4(1): 26-31                                    | 49   |
| 45  | Nalliah S, Loh KY, Japaraj RP, Mukundan K. Is there a place for selective vaginal delivery in Malaysian Hospitals: experiences from the Ipoh Hospital. <i>J Matern Fetal Neo Med</i> 2009; 22(2): 129-136  | 50   |
| 46  | Nassar I, Thanickachalam PM, Judson JP, Segarra I. Reduced exposure of imatinib after co-administration with acetaminophen in mice. <i>Indian J Pharmacol</i> 2009; 412(4): 167-172  | 51   |
| 47  | Nayanatara AK, Nagaraja HS, C Ramaswamy, K Bhagyalakshmi, M Ramesh Bhat, N Harini. Estimation of tissue lipid peroxidation level and organ weight in litters of Wistar rats exposed to prenatal alcohol ingestion. <i>J Physiological Biomed Sci</i> 2009; 21: 44-47                             | 52   |
| 48  | Nayanatara AK, Nagaraja HS, C Ramaswamy, K Bhagyalakshmi, M Ramesh Bhat, G Damodara, V Mampur. Effect of chronic unpredictable stressors on some selected lipid parameters and biochemical parameters in Wistar rats. <i>J Chinese Clin Med</i> 2009; 4(2): 92-97                                | 53   |
| 49  | Nazimah I, Che Hatikah Che Hanafi, Murizah Md Zain, Muhd Rushdn Md Noor. Universal versus selective screening for the detection of gestational diabetes mellitus in a Malaysian population. <i>Malaysian Fam Physician</i> 2009; 4(2&3): 83-87   | 54   |

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| 51         | 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. <i>Brit J Nutr</i> 2009; 101(6): 810-815                           | 56          |
| 52         | Raja Lope RJ, Boo NY, Rohana J, Cheah FC. A quality assurance study on the administration of medication by nurses in a neonatal intensive care unit. <i>Singapore Med J</i> 2009; 50: 68-72  | 57          |
| 53         | Roberts NJ, Mohamed Z, Wong PS, Johnson M, Loh LC, Partridge MR. The development and comprehensibility of a pictorial asthma action plan. <i>Patient Educ Couns</i> 2009; 74(1): 12-18   | 58          |
| 54         | Rumi K, Kew ST, Cham YL. Left-sided hydropneumothorax in a young male: Importance of clinical and radiological markers in arriving at an aetiological diagnosis. <i>Malaysian Fam Physician</i> 2009; 4(1): 41-43  | *           |
| 55         | Rumi K, Das Gupta E. A tile-factory worker presenting with breathlessness and dry cough. <i>Aust Fam Physician</i> 2009; 38(10): 803-804   | *           |
| 56         | Rumi K. Dry cough with progressively increasing breathlessness in a 65-year old man. <i>Malaysian Fam Physician</i> 2009; 4(2&3):103-104   | *           |
| 57         | S Sulaiha SA, Zainur Rashid Z. Vaginal vault prolapse: understanding its complexity and surgical options for treatment. <i>Mal J Obstet Gynaecol</i> 2009; 8(18): 1-12   | 59          |
| 58         | Sturgeon CM, Lai LC, Duffy MJ. Serum tumour markers: how to order and interpret them. <i>BMJ</i> 2009; 339: b3527<br>doi: 10.1136/bmj.b3527  | *           |
| 59         | Swarnalatha Dugasani, Pichika MR, Nadarajah VD, Madhu K Balijepalli, Satyanarayana Tandra, Jayaveera N Korlakunta. Comparative antioxidant and anti-inflammatory effects of [6]-gingerol, [8]-gingerol, [10]-gingerol and [6]-shogaol. <i>J Ethnopharmacol</i> 2009;127(2):515-520               | 60-61       |

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| 61  | Syed Shahzad H, Syed Imran A, Bukhari NI, Cheah WWL. Use of complementary and alternative medicine among patients with chronic diseases at outpatient clinics. <i>Complementary Therapies in Clin Practice</i> 2009; 15(3): 152-157                                      | 63   |
| 62  | Tada S, Chowdhury EH, Cho CS, Akaike T. pH-sensitive carbonate apatite as an intracellular protein transporter. <i>Biomaterials</i> 2009; 31(6):1453-1459  | 64   |
| 63  | Tan NH, Ponnudurai G, Fung SY. Serum kinetics of <i>Calloselasma rhodostoma</i> (Malayan pit viper) venom components in rabbit. <i>J Venom Anim Toxins</i> 2009; 15: 340-346   | 65   |
| 64  | Tan KL. Knowledge, attitude and practice on breastfeeding in Klang, Malaysia. <i>Int Med J</i> 2009; 8(1): 17-21   | 66   |
| 65  | Tan KL. Factors associated with non-exclusive breastfeeding among 4-week post-partum mothers in Klang District, Peninsular Malaysia. <i>Malaysian J Nutr</i> 2009; 15(1): 11-18  | 67   |
| 66  | Tan KL. Bed sharing among mother-infant pairs in Klang District, Peninsular Malaysia and its relationship to breastfeeding. <i>J Dev Behav Pediatr</i> 2009; 30(5): 420-425  | 68   |
| 67  | Tan KL, SN Ghani, FM Moy. The prevalence and characteristics associated with mother-infant bed-sharing in Klang District, Malaysia. <i>Med J Malaysia</i> 2009; 64(4):311-315  | 69   |
| 68  | Tan SC, Yiap BC. DNA, RNA, and protein extraction: the past and the present. <i>J Biomed Biotechnol</i> 2009; 2009: 574398   | 70   |
| 69  | Teng CL. Test your knowledge: a woman with fever and neck pain. <i>Malaysian Fam Physician</i> 2009; 4(1): 40  | *    |
| 70  | Wong FL, Boo NY, Ainoon O, Wong MK. Comparison of detection of glucose-6-phosphate dehydrogenase deficiency using fluorescent spot test, enzyme assay and molecular method for prediction of severe neonatal hyperbilirubinaemia. <i>Singapore Med J</i> 2009; 50: 62-67 | 71   |

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Agarwal Renu, Gupta Suresh Kumar, Srivastava Sushma, Puneet A, Agrawal Shyam Sunder. Therapeutic potential of Curcuma longa, the golden spice of India, in drug discovery for ophthalmic diseases. Expert Opin Drug Discovery 2009; 4(2): 147-158

## **Therapeutic potential of Curcuma longa, the golden spice of India, in drug discovery for ophthalmic diseases**

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### **Abstract**

#### Background:

Curcuma longa is among the most commonly used spices in India and other Asian countries. The herb has also been used in Ayurveda and other traditional systems of medicine for the prevention and treatment of a variety of ailments. Curcuminoids are the major chemical constituents of C. longa that are of medicinal importance. Today, a large body of scientific evidence exists to indicate potential therapeutic benefits of C. longa. Several preclinical and clinical studies have investigated the pharmacological properties of C. longa and results indicate strong therapeutic potential for anti-inflammatory, antioxidant, antibacterial, anticancer and many other properties.

#### Objective:

This review summarizes the scientific evidences showing possible benefits of C. longa in a variety of ophthalmic diseases.

#### Conclusion:

Although the putative mechanism(s), molecular targets and range of therapeutic applications have been researched widely, further investigations are needed to explore the true therapeutic potential and future of curcuminoids as novel drug molecules in ophthalmic diseases.

**Key words:** conjunctivitis, Curcuma longa, curcumin, diabetic retinopathy, ophthalmic diseases, uveitis

Alinawati M. Ali, Nazimah I, Ravindran Jegasothy, Zainul Rashid MR. A cross sectional study on knowledge, attitudes and practice regarding contraception among perimenopausal women in Tuanku Ja'afar Hospital, Seremban. *Mal J Obstet Gynaecol* 2009;8(17):54-69

## **A cross sectional study on knowledge, attitudes and practice regarding contraception among perimenopausal women in Tuanku Ja'afar Hospital, Seremban**

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### **Abstract**

#### **Objective:**

To evaluate the knowledge, attitudes and practice of contraception among perimenopausal women in Seremban and to determine any possible relationship or determining factors contributing to the above parameters

#### **Design:**

A questionnaire-based cross-sectional survey performed in Tuanku Ja'afar Hospital (HTJ), Negeri Sembilan over a six month period from January to June 2008. Sexually active, perimenopausal patients between the age of 40-49 years who were attending antenatal or gynaecology clinic or admitted to any female ward in HTJ were selected randomly.

#### **Result:**

A total of 121 patients were included in this study with an overall mean age of 43.64 ±2.94 years. Contraceptive prevalence rate among perimenopausal women in HTJ was 38.8%. Natural method was the most popular method (48.7%) followed by sterilisation (23.4%), oral contraceptive pills (2.5%) and IUCD (1.7%). Withdrawal method was popular among Malays whereas the condom was predominantly used by the Chinese population. About 50% were unaware of the risks associated with pregnancy in their age group and majority (85.1%) did not know when contraception methods should be stopped. Majority of husband/ partner (91.5%) were aware and were supportive towards contraceptive use.

#### **Conclusion:**

The rate of contraception use among perimenopausal women in Seremban was low due to poor awareness of pregnancy risk and also lack of knowledge regarding contraceptive option.

**Key words:** Contraception, perimenopausal

Anupama Bangra Kulur, Nagaraja HS, Prabha Adhikary, Jeganathan PS. Effect of diaphragmatic breathing on heart rate variability in ischemic heart disease with diabetes. *Arq Bras Cardiol* 2009; 92(6):423-429

## **Effect of diaphragmatic breathing on heart rate variability in ischemic heart disease with diabetes**

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### **Abstract**

#### **Background:**

Reduced heart rate variability is associated with an unfavorable prognosis in patients with ischemic heart disease and diabetes. Whether change in breathing pattern can modify the risk factor in these patients has not been definitely proved.

#### **Objective:**

To evaluate the effect of diaphragmatic breathing on heart rate variability (HRV) in ischemic heart disease patients with diabetes.

#### **Methods:**

Study population consisted of 145 randomly selected male patients of which 45 had ischemic heart disease (IHD), 52 had IHD and diabetes (IHD-DM) and the remaining 48 had IHD and diabetic neuropathy (IHD-DN). HRV was assessed by 5 minute-electrocardiogram using the time domain method. The intervention group was divided into compliant and non-compliant groups and follow-up recording was carried out after three months and one year.

#### **Results:**

Baseline recordings showed a significant decrease in HRV in ischemic heart disease (IHD) patients with or without diabetes ( $p < 0.01$ ). IHD patients had higher HRV than IHD patients with diabetes ( $p < 0.01$ ) or diabetic neuropathy ( $p < 0.01$ ). Increase in HRV was observed in patients who practiced diaphragmatic breathing for three months (IHD-DM:  $p < 0.01$ ; IHD-DN:  $p < 0.05$ ) and for one year (IHD-DM:  $p < 0.01$ ; IHD-DN:  $p < 0.01$ ). The HRV significantly decreased after one year in non-compliant patients. The regular practice of diaphragmatic breathing also improved the glycemic index in these patients.

#### **Conclusion:**

The regular practice of diaphragmatic breathing significantly improves heart rate variability with a favorable prognostic picture in ischemic heart disease patients who have diabetes. These effects seem to be potentially beneficial in the management of IHD patients with diabetes.

**Key words:** Respiration; heart rate; heart failure; diabetes mellitus; myocardial ischemia

Boo NY. Neonatal resuscitation programme in Malaysia: an eight-year experience. Singapore Med J 2009; 50(2):152-159

## **Neonatal resuscitation programme in Malaysia: an eight-year experience**

Boo NY

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### **Abstract**

#### **Introduction:**

The neonatal resuscitation programme (NRP) published by the American Academy of Paediatrics and American Heart Association was launched in Malaysia in 1996. This study aimed to review the outcome of NRP in Malaysia during the first eight years.

#### **Methods:**

Information on basic demographical data and training activities of NRP providers were collected prospectively from NRP instructors from all over Malaysia during the eight years following the inception of the NRP. The national perinatal and neonatal mortality data during the five-year period before and eight years following implementation of the NRP were compared.

#### **Results:**

During the eight years following the launch, 14,575 personnel were trained. 40 percent of NRP-certified personnel worked in areas where delivery services were provided, viz. labour room, operation theatre, obstetric ward, emergency department and maternal and child health clinic. There were very few NRP-certified providers working in emergency departments and most of them were medical assistants. Most of the providers working in neonatal intensive care units (NICUs) and labour rooms were nurses while those in paediatric wards were doctors. All NRP-certified doctors working in NICUs and labour rooms obtained full certificates. Only 80 percent of NRP-certified nurses in these two areas obtained full certificates. There was further serial decrease in perinatal mortality and neonatal mortality rates in Malaysia during the years following the launch of the NRP programme.

#### **Conclusion:**

The launch of the Malaysian NRP was associated with further improvement in perinatal and neonatal mortality rates.

**Key words:** neonatal mortality rates, neonatal resuscitation programme

Chakravarthi S, Chong Fu Wen, Nagaraja HS. Apoptosis and expression of bcl-2 in cyclosporine induced renal damage and its reversal by beneficial effects of 4, 5, 7 – Trihydroxyflavone. J Anal Bio Sci 2009; 32(4): 320-327

## **Apoptosis and expression of bcl-2 in cyclosporine induced renal damage and its reversal by beneficial effects of 4, 5, 7 – Trihydroxyflavone**

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### **Abstract**

Cyclosporine A, a calcineurin inhibitor produced by the fungi *Trichoderma polysporum* and *Cylindrocarpum lucidum*, is an immunosuppressant prescribed in organ transplants to prevent rejection. Its adverse effect of renal dysfunction has limited its use in a clinical setting. Apigenin (4',5',7'-trihydroxyflavone), a herbal extract, with anti-inflammatory and anti-tumour properties, has shown to reverse this adverse effect. This research was conducted to study the effects of apigenin on reversal of cyclosporine A induced damage, and this was assessed by immunohistochemical estimation of expression of bcl-2, and estimation of apoptosis in histopathological sections. Rats were divided into groups and administered with cyclosporine A with apigenin in different doses. The kidneys from the rats were harvested, weighed, and observed for gross pathology changes. The renal tissue was processed, and stained for haematoxylin and eosin staining, to assess the apoptotic index, and stained by immunohistochemistry, for the analysis of the apoptosis regulatory gene bcl-2. The apoptotic index was then compared with the bcl-2 intensity to observe for any correlation. It was found that there was a high apoptotic index and bcl-2 intensity in the cyclosporine A group. Apigenin managed to reduce the values of both parameters. The apoptotic index correlated with the bcl-2 intensity, especially in the glomeruli. The study proved that cyclosporine A enhanced the expression of bcl-2 in the rat kidney, which signifies accelerated apoptosis. Therefore, bcl-2 and apoptotic index may be used to assess apigenin and its effect on cyclosporine A induced renal damage.

**Key words:** Cyclosporine, Nephrotoxicity, Apigenin, 4',5',7'-Trihydroxyflavone, Apoptosis, bcl-2

Chakravarthi S, David Low Wee Yang, Thanikachalam PM, Nagaraja HS, Bukhari NI. Assessment of proliferative index and its association with Ki-67 antigen molecule expression in nodular hyperplasia of prostate. Indian J Sci Technol 2009; 2(8): 1-4

## **Assessment of proliferative index and its association with Ki-67 antigen molecule expression in nodular hyperplasia of prostate**

Srikumar Chakravarthi<sup>1,\*</sup>, David Low Wee Yang, Thanikachalam P<sup>1</sup>, Nagaraja HS<sup>2</sup>, Nadeem Irfan Bukhari<sup>3</sup>

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### **Abstract**

The cytoplasmic expression of Ki-67, a nuclear protein that appears primarily during the proliferative phases of the cell cycle was studied in benign tumours of the prostate gland. Archival prostatic tissue from 39 patients with nodular hyperplasia and no prior or subsequent prostatic carcinoma that have been obtained through transurethral prostatectomy (TURP) procedure, were used in this study. The proliferative index was assessed by calculating the number of actively proliferating cells in the H&E sections in varied histologic patterns like hyperplastic epithelium, proliferating stroma, normal glands and normal stroma. The nuclear protein Ki-67 was analyzed by immunohistochemistry for determining the cytoplasmic positivity of the tumour cells. The proliferative index in the hyperplastic tissues was higher, indicating an increased activity of cellular proliferation, compared with the normal tissues, which was highly significant ( $p < 0.01$ ). Out of 39 cases of prostatic tissue, 25 (64 %) showed positivity for Ki-67 expression. Pearson's correlation test was applied to and showed significant association ( $p < 0.05$ ) between the intensity of Ki-67 expression with proliferative index. Comparisons of proliferative indices between the normal cells and tumour cells showed significant correlation, strongly suggesting the higher cell proliferation in the benign lesions. Enhanced expression of Ki-67 by the tumour cells suggests a growth imbalance in favour of cell proliferation that might ultimately promote prostatic hyperplasia.

**Key words:** prostate, mitosis, Ki-67, nodular hyperplasia.

Chakravarthi S, Judson JP, Priya Vijayan. An evaluative study on comparison of Problem-based Learning (PBL) and lecture based pedagogy on self-directed learning in undergraduate medical education. Indian J SciTechnol, 2009, 2 (12): 59-67

## **An evaluative study on comparison of problem-based learning and lecture based pedagogy on self-directed learning in undergraduate medical education**

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<sup>3</sup>Educational Psychologist, Global Indian International School, Kuala Lumpur, Malaysia

### **Abstract**

This study was done to evaluate and compare the effectiveness of problem-based learning (PBL) with that of lecture based instructional approaches on various facets of students' self directed learning, including motivation and learning strategies. Participants included 96 phase 1 MBBS students instructed by the same facilitators, half of whom were control group. The authors randomly assigned 1 class as the experimental group and the other class as the control group. Lecturers instructed the control group with lecturer-centered, textbook-oriented traditional instruction; they exposed the experimental group to problem-based learning, in which students worked with ill-structured problems. Results revealed that PBL students had higher levels of intrinsic goal orientation, task value, use of elaboration learning strategies, critical thinking, metacognitive self-regulation, effort regulation, and peer learning compared with control-group students.

**Key words:** Science education, medical, problem based learning, self directed learning.

Chakravarthi S, Linda Tjoa Husin, Thanikachalam PM, Bukhari NI. A study of the significance of apoptosis and its association with abnormalities in expression of BCL-2 Proto-Oncogene in benign nodular hyperplasia of prostate. Res J Biol Sci 2009; 4(7): 836-841

## **A study of the significance of apoptosis and its association with abnormalities in expression of BCL-2 Proto-Oncogene in benign nodular hyperplasia of prostate**

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### **Abstract**

Benign Prostatic Hyperplasia (BPH) is an enlargement of the prostate gland caused by an increase in the number of glandular units. Apoptosis is a programmed cell death necessary for the regulation of the size of organs in adult life. Disruption of apoptotic pathway has been suggested as an important regulatory mechanism in BPH. A high level of the BCL-2 protein suppresses apoptosis by preventing the activation of the enzymes that carry out the process. In this study, an attempt was made to observe the abnormal expression of BCL-2 protein in BPH tissues in paraffin sections and to demonstrate the disruption of apoptotic pathways in BPH. Prostatic tissue from 30 patients with BPH and no prior prostatic carcinoma were obtained by transurethral resection of prostate procedure. Apoptotic index was compared in the H and E sections. Expression of BCL-2 was analysed by immunohistochemistry and evaluated. Apoptotic index in BPH tissues was found to be twice lower than that of normal tissues. Wilcoxon signed rank test was employed and the p-value proved that the results were highly significant ( $p < 0.01$ ). This data supported the research hypothesis that apoptotic index is decreased in benign prostatic hyperplasia. Out of the 30 tissue samples, 20 (67%) shown positivity for BCL-2 expression. Kendall's Tau-B test was applied and the result showed negative correlation between the intensity of BCL-2 expression and apoptosis, however not significantly. This proves, the theory that BCL-2 regulates individual cell death up to a certain extent.

**Key words:** Apoptosis, mitosis, immunohistochemistry, BCL-2, benign prostatic hyperplasia



Chen YS, Achike FI, Ponnudurai G, Hla-Yee-Yee, A Garden. Perception of medical students for a hybrid problem-based curriculum. J Medical Education 2009; 13; 141-56

## **Perception of medical students for a hybrid problem-based curriculum**

Yu S. Chen<sup>1</sup>, Francis I. Achike<sup>2</sup>, G Ponnudurai<sup>3</sup>, Hla Yee Yee<sup>3</sup>, Anne Garden<sup>4</sup>

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### **Abstract**

Problem-Based Learning (PBL) is gaining popularity among Asian medical schools, many of which incorporate PBL to various degrees in what is generally referred to as 'hybrid curriculum' of traditional lectures and PBL. The aim of this study was to evaluate the students' perception in a hybrid curriculum of PBL and how it fared compared with traditional lectures. A questionnaire of open-ended questions was administered to semesters 1-5 students to obtain their opinions of the strengths and drawbacks of PBL and lectures. Their responses were categorised under themes for the purpose of obtaining descriptive statistics. The students cited improvement in communication skills and fostering of team spirit as the main advantages of PBL. The drawbacks included unclear scope, problems with group members, time-invested and problems with facilitator. They suggested better facilitator training and changes in PBL method as a means of improving the process. Regarding lectures, the students identified provision of clearer scope and better understanding as the main benefits, but also alluded to boring and ineffective lectures. The students would like to have more tutorials and practice on dissection. The students tended to favour didactic teaching over PBL despite the known particular advantages of PBL. It is concluded that while medical schools may opt for the hybrid curriculum, there is a need to ensure quality of delivery of both modalities and a proper balance between the PBL- and lecture- delivered components of the curriculum in a manner that optimises the special contribution of each.

**Key words:** PBL, lectures, hybrid curriculum, students' perception

Chiu CK, Singh VA. Is nonoperative treatment still indicated for Jones fracture?  
Eur J Trauma Emerg Surg 2009; 4: 407-410

## Is nonoperative treatment still indicated for Jones fracture?

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<sup>2</sup>University Malaya Medical Centre Orthopaedic Surgery Kuala Lumpur Malaysia

<sup>3</sup>International Medical University Clinical School 70300 Seremban Negeri Sembilan Malaysia

### Abstract

Introduction:

The issue of whether to treat Jones fracture surgically or nonsurgically is still controversial. In our institution, most acute Jones fractures are treated conservatively.

Objectives:

This study assessed the functional outcomes of patients with acute Jones fractures that were treated conservatively by means of radiographic assessment, a physician-based scoring system and patient-based questionnaires.

Methodology:

In this study, 25 patients with Jones fracture treated in our institution between January 2002 to December 2006, were retrospectively reviewed. Injuries were classified according to Jones' original description and the Torg classification. A simple patient satisfaction questionnaire was completed. Radiographic assessment of fracture union was recorded. Outcome instruments used were (a) the American Orthopaedic Foot and Ankle Society (AOFAS) clinical rating system and (b) the American Academy of Orthopaedic Surgeons (AAOS) foot and ankle outcome questionnaire.

Results:

Of the 25 patients reviewed, 60% were very satisfied with the outcome, 28% were satisfied, 8% were fairly satisfied, and 4% were very dissatisfied. Based on radiographic and clinical assessments, one patient had delayed union and was treated surgically. The functional outcome scores were: mean AOFAS clinical rating score of  $95.6 \pm 7.7\%$  ( $P < 0.005$ ), mean AAOS foot and ankle score of  $97.0 \pm 4.4\%$  ( $P < 0.005$ ) and mean AAOS shoe comfort score of  $90.2 \pm 19.6\%$  ( $P < 0.005$ ).

Conclusions:

Acute Jones fracture can be treated conservatively with good functional outcome.

**Key words:** Jones fracture - Ankle and hindfoot - Fracture healing - Fractures - Lower limb

Chiu CK, Singh VA. Chronic recurrent multifocal osteomyelitis of the first metatarsal bone: a case report. J Orthop Surg 2009 Apr; 17(1): 119-122

## **Chronic recurrent multifocal osteomyelitis of the first metatarsal bone: a case report**

Chiu CK<sup>1</sup>, Singh VA<sup>2</sup>

<sup>1</sup>Dr Chee-Kidd Chiu, Clinical School, International Medical University, Seremban, Malaysia

<sup>2</sup>Department of Orthopaedic Surgery, University of Malaya Medical Centre, Kuala Lumpur, Malaysia

### **Abstract**

We report a case of chronic recurrent multifocal osteomyelitis in a 9-year-old girl. She presented with a 9-month history of gradually worsening pain and swelling in her left foot. Non-steroidal anti-inflammatory drugs were prescribed but the symptoms persisted. She underwent curettage through a small oval corticotomy window on the first metatarsal bone. The pain and swelling improved promptly and she was able to walk without pain 2 weeks later. Curettage enabled rapid symptomatic relief and induced remission, with little risk of complications.

**Key words:** anti-inflammatory agents, non-steroidal, curettage, osteitis, osteomyelitis, Child, Chronic Disease

Chong FW, Chakravarthi S, Nagaraja HS, Thanikachalam PM, Nagarajah Lee. Expression of transforming growth factor- $\beta$  and determination of apoptotic index in histopathological sections for assessment of the effects of Apigenin (4',5',7'-trihydroxyflavone) on Cyclosporine A induced renal damage. *Malaysian J Pathol.* 2009; 31(1): 35–43

## **Expression of transforming growth factor- $\beta$ and determination of apoptotic index in histopathological sections for assessment of the effects of Apigenin (4',5',7'-trihydroxyflavone) on Cyclosporine A induced renal damage**

Chong FW<sup>1</sup>, Srikumar Chakravarthi<sup>1,\*</sup>, HS Nagaraja<sup>1</sup>, PM Thanikachalam<sup>1</sup>, Nagarajah Lee<sup>2</sup>

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### **Abstract**

Cyclosporine A (CsA), a calcineurin inhibitor produced by the fungi *Trichoderma polysporum* and *Cylindrocarpon lucidum*, is an immunosuppressant prescribed in organ transplants to prevent rejection. Its adverse effect on renal dysfunction has limited its use in a clinical setting. Apigenin (4',5',7'-Trihydroxyflavone), a herbal extract, with anti-inflammatory and anti-tumour properties, has been investigated for properties to reverse this adverse effect. This research was conducted to establish a standard protocol for immunohistochemical estimation of Transforming Growth Factor beta (TGF-beta) expression, as an indicator of Cyclosporine A induced damage, and to observe whether apoptotic index and TGF-beta expression can be used to assess effects of Apigenin on CsA induced renal dysfunction. Six groups of 5 male Sprague-Dawley albino rats each were dosed once daily for 21 days, as follows: (1) negative control--oral corn oil, (2) positive control--Cyclosporine A (25 mg/kg), (3) Group 3--Apigenin (20 mg/kg), (4) Group 4--Cyclosporine A (25 mg/kg) +Apigenin (10 mg/kg), (5) Group 5--Cyclosporine A (25 mg/kg) +Apigenin (15 mg/kg) and (6) Group 6--Cyclosporine A (25 mg/kg) +Apigenin (20 mg/kg). Cyclosporine A was administered intra-peritoneally while Apigenin was given orally. The rat kidneys were harvested and examined microscopically to assess the apoptotic index, and stained by immunohistochemistry for multifunctioning polypeptide TGF-beta expression. A high apoptotic index and TGF-beta intensity was observed in the Cyclosporine A group. Apigenin significantly reduced the both apoptotic index and TGF-beta intensity. The apoptotic index correlated with TGF-beta intensity, especially in glomeruli. This study indicates that Cyclosporine A can enhance the TGF-beta expression in rat kidney, signifying accelerated apoptosis. TGF-beta and apoptotic index may be used to assess Apigenin and its effect on Cyclosporine A induced renal damage.

**Key words:** Cyclosporine A, nephrotoxicity, Apigenin, Apoptotic Index, Transforming Growth Factor  $\beta$  (TGF-  $\beta$ )

Chu WL, See YC, Phang SM. Use of immobilised *Chlorella vulgaris* for the removal of colour from textile dyes. *J Appl Phycol* 2009; 21:641–648

## Use of immobilised *Chlorella vulgaris* for the removal of colour from textile dyes

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<sup>2</sup>Institute of Biological Sciences & Institute of Ocean and Earth Sciences, University of Malaya, 50603 Kuala Lumpur, Malaysia

### Abstract

Discharge of textile wastewater containing toxic dyes can adversely affect the aquatic ecosystems and human health. The objective of the present study was to investigate the potential use of immobilised *Chlorella vulgaris* UMACC 001 in removing colour from textile dyes (Supranol Red 3BW, Lanaset Red 2GA and Levafix Navy Blue EBNA) and textile wastewater (TW). Two immobilisation matrices were used, namely 1%  $\kappa$ -carragenan and 2% sodium alginate. Of the three dyes tested, the highest percentage of colour removal was from Lanaset Red 2GA. The cultures immobilised in 2% alginate attained the highest percentage of colour removal (44.0%) from the dye at an initial concentration of 7.25 mg L<sup>-1</sup>. Immobilised cultures in alginate also removed higher percentage of colour (48.9%) from the TW, than the suspension cultures (34.9%). Aeration did not enhance the percentage of colour removal but increased the colour intensity of the wastewater instead. *C. vulgaris* immobilised in alginate will be useful for final polishing of textile wastewater after undergoing primary treatment before discharge.

**Key words:** Immobilised algae, *Chlorella vulgaris*, Colour removal, Textile dyes, Bioremediation

## **Nuclear targeting of viral and non-viral DNA**

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International Medical University (IMU)

### **Abstract**

The nuclear envelope presents a major barrier to transgene delivery and expression using a non-viral vector. Virus is capable of overcoming the barrier to deliver their genetic materials efficiently into the nucleus by virtue of the specialized protein components with the unique amino acid sequences recognizing cellular nuclear transport machinery. However, considering the safety issues in the clinical gene therapy for treating critical human diseases, non-viral systems are highly promising compared with their viral counterparts. This review summarizes the progress on exploring the nuclear traffic mechanisms for the prominent viral vectors and the technological innovations for the nuclear delivery of non-viral DNA by mimicking those natural processes evolved for the viruses as well as for many cellular proteins.

**Key words:** gene delivery; importin; non-viral vectors; nuclear localization signal; nuclear pore; nuclear transport; transgene expression; viral vectors

Das Gupta E, Zailinawati AH, Lim AW, Chan AB, Yap SH, Hla-Yee-Yee, Kamil MA, Teng CL. Are Indians and females less tolerant to pain? An observational study using a laboratory pain model. *Med J Malaysia* 2009; 64(2): 111-113

## **Are Indians and females less tolerant to pain? an observational study using a laboratory pain model**

Das Gupta E<sup>1</sup>, Zailinawati AH<sup>1</sup>, Lim AW<sup>1</sup>, Chan AB<sup>1</sup>, Yap SH<sup>1</sup>, Hla YY<sup>1</sup>, Kamil MA<sup>1</sup>, Teng CL<sup>1</sup>

<sup>1</sup>International Medical University, Clinical School, 70300 Seremban, Negeri Sembilan, Malaysia

### **Abstract**

In Malaysia, it is a common belief among health care workers that females and Indians have lower pain threshold. This experience, although based on anecdotal experience in the healthcare setting, does not allow differentiation between pain tolerance, and pain expression. To determine whether there is a difference in the tolerance to pain between the three main ethnic groups, namely the Malays, Chinese and Indians as well as between males and females. This was a prospective study, using a laboratory pain model (ischaemic pain tolerance) to determine the pain tolerance of 152 IMU medical students. The mean age of the students was 21.8 years (range 18-29 years). All of them were unmarried. The median of ischaemic pain tolerance for Malays, Chinese and Indians were 639s, 695s and 613s respectively ( $p = 0.779$ ). However, statistically significant difference in ischaemic pain tolerance for males and females Indian students were observed. Possible ethnic difference in pain tolerance in casual observation is not verified by this laboratory pain model. Difference in pain tolerance between genders is shown only for Indians.

**Key words:** Ischaemic pain tolerance (IPTO), Gender, Race, General Health Questionnaire (GHQ)

Das Gupta E. Common laboratory tests for rheumatological disorders: How do they help the diagnosis? Malaysian Fam Physician 2009;4(2&3):48-50

## **Common laboratory tests for rheumatological disorders: how do they help the diagnosis?**

Das Gupta E

Department of Medicine, International Medical University, Jalan Rasah, 70300 Seremban, Negeri Sembilan, Malaysia

### **Abstract**

No screening test is ideal for detecting rheumatic diseases; diagnosis depends on appropriate history and thorough physical examination. Sometimes, laboratory investigations may be useful in confirming or ruling out rheumatic disease after a clinical diagnosis is considered. Once a rheumatic disease has been diagnosed, certain laboratory tests can help in assessing prognosis or determining the extent of the disease. Laboratory tests may also help the physician monitor certain rheumatic diseases, guide treatment or assess potential drug toxicity.



Gopal Kandagam, Achike FI, Mohd R Mustafa. Effect of acidosis on the mechanism(s) of insulin-induced vasorelaxation in normal Wistar-Kyoto (WKY) rat aorta. *Reg Peptides* 2009; 155: 70-75

## Effect of acidosis on the mechanism(s) of insulin-induced vasorelaxation in normal Wistar-Kyoto (WKY) rat aorta

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<sup>2</sup>Clinical Sciences Section, International Medical University, Commonwealth Plaza, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

### Abstract

The effect of acidosis on insulin-induced relaxation was studied in thoracic aortic rings (from Wistar-Kyoto (WKY) rats) with (+ ED) or without (- ED) endothelium. The rings were mounted in normal (pH 7.4) or acidotic (pH 7.2) Krebs solution for isometric tension recording. Phenylephrine (PE, 3.0  $\mu$ M)-contracted tissues were exposed to insulin in the presence or absence of various inhibitors. Insulin exerted similar concentration-dependent relaxation of + ED tissues in normal and acidotic pH. Endothelium denudation, significantly ( $p < 0.05$ ) reduced insulin effect in normal, but not acidotic pH. Under normal pH, treatment with L-NAME or methylene blue significantly ( $p < 0.05$ ) reduced insulin responses in the + ED (but not the - ED) tissues. The insulin effect was also significantly ( $p < 0.05$ ) inhibited by tetraethylammonium (TEA; BK<sub>Ca</sub> blocker), 4-Aminopyridine (4-AP; K<sub>v</sub> channel blocker), combined treatments (L-NAME + 4-AP + TEA, in + ED tissues) or (4-AP + TEA, in - ED tissues). In either + ED or - ED tissues, indomethacin (cyclo-oxygenase inhibitor), glibenclamide (K<sub>ATP</sub> channel blocker), barium chloride (K<sub>ir</sub> channel blocker) or Ouabain (a Na<sup>+</sup>/K<sup>+</sup>-ATPase inhibitor) had no effect. Except for methylene blue (effect on + ED tissues), none of the drug treatments inhibited insulin vasodilator effect in acidosis (+ ED or - ED tissues). These data indicate that insulin exerts an endothelium-dependent and -independent vasodilatation in rat aorta which in normal pH is mediated via BK<sub>Ca</sub> and K<sub>v</sub> channels, including the EDNO-cGMP cascade. Acidosis abolishes the endothelium-dependent relaxation mechanism unraveling a novel mechanism that is as efficacious and is cGMP-, but not EDNO-, BK<sub>Ca</sub>- or K<sub>v</sub>-mediated.

**Key words:** Aorta; Acidosis; Endothelium; Insulin; Vasodilation

Haneline M, Cooperstein R. Outcomes of a practice-based feasibility study of chiropractic care for patients with acute neck pain. *J Chiropractic Med* 2009;8(4):143-155

## **Outcomes of a practice-based feasibility study of chiropractic care for patients with acute neck pain**

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<sup>2</sup>Adjunct Professor, Palmer College of Chiropractic West, San Jose, CA 95134

<sup>3</sup>Professor, Palmer College of Chiropractic West, San Jose, CA 95134

### **Abstract**

#### **Objective:**

The purpose of this study was to determine the feasibility of a chiropractic practice-based research network to investigate the treatment of acute neck pain (ANP) and to report resulting findings.

#### **Methods:**

Participating chiropractors recruited sequentially presenting ANP patients on their initial visit to the office. Patients were treated by the chiropractors using their usual methods. Data were prospectively collected by having patients complete the Neck Disability Index, Characteristic Pain Intensity score, and a patient satisfaction questionnaire. Questionnaires were completed during routine office visits at baseline and then at weeks 1, 2, 4, 8, and 26, either in the office or by mail.

#### **Results:**

Ten chiropractors supplied data on 99 patients. The number of cases contributed by each of the participating chiropractors ranged from 1 to 54, with a mean (SD) of 9.2 (10.5). Mean (SD) Neck Disability Index scores were 36 (17.9) at baseline and 9.8 (12.2) at the final evaluation; the Characteristic Pain Intensity scores were initially 55.3 (20.4) and were 24.5 (21.5) at the final evaluation. Transient minimal adverse effects were reported by chiropractors for only 7 (7.8%) patients. No serious adverse reactions were reported.

#### **Conclusion:**

The practice-based research methodology used in this study appears to be a feasible way to investigate chiropractic care for ANP, and its methodologies could be used to plan future research.

**Key words:** Neck pain; Chiropractic; Manipulation, spinal; Neck injuries

Jahanfar S, Ng CJ, Teng CL. Antibiotics for mastitis in breastfeeding women. *Cochrane Database Syst Rev* 2009; (1): CD005458. DOI: 10.1002/14651858.CD005458.pub2

## Antibiotics for mastitis in breastfeeding women

Jahanfar S<sup>1,\*</sup>, Ng CJ<sup>2</sup>, Teng CL<sup>3</sup>

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<sup>3</sup>International Medical University Jalan Rasah, Department of Family Medicine, Seremban, Negeri Sembilan Darul Khusus, Malaysia

### Abstract

#### Background:

Mastitis can be caused by ineffective positioning of the baby at the breast or restricted feeding. Infective mastitis is commonly caused by *Staphylococcus Aureus*. Incidence of mastitis in breastfeeding women may reach 33%. Effective milk removal, pain medication and antibiotic therapy have been the mainstays of treatment.

#### Objective:

This review aims to examine the effectiveness of antibiotic therapies in relieving symptoms for breastfeeding women with mastitis with or without laboratory investigation.

#### Search Strategy:

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (December 2007), the Cochrane Central Register of Clinical Trials (The Cochrane Library 2007, Issue 4), MEDLINE (1996 to 2007) and EMBASE (January 1985 to 2007). We contacted investigators and other content experts known to us for unpublished trials and scanned the reference lists of retrieved articles

#### Selection Criteria:

Randomized and quasi-randomized clinical trials comparing the effectiveness of various types of antibiotic therapies or antibiotic therapy versus alternative therapies for the treatment of mastitis were selected.

#### Data Collection and Analysis:

Two authors independently assessed trial quality and extracted data. When in dispute, we consulted a third author.

#### Main Results:

Two trials met the inclusion criteria. One small trial (n = 25) compared amoxicillin with cephadrine and found no significant difference between the two antibiotics in terms of symptom relief and abscess formation. Another, older study compared breast emptying alone as "supportive therapy" versus antibiotic therapy plus supportive therapy, and no therapy. The findings of the latter study suggested faster clearance of symptoms for women using antibiotics, although the study design was problematic.

**Authors' Conclusions:**

There is insufficient evidence to confirm or refute the effectiveness of antibiotic therapy for the treatment of lactational mastitis. There is an urgent need to conduct high-quality, double-blinded randomized clinical trials to determine whether antibiotics should be used in this common postpartum condition.

Koh KC, Husni S, Tan JE, Tan CW, Kunaseelan S, Nuriah S, Ong KH, Morad Z. High prevalence of Methicillin-resistant Staphylococcus aureus (MRSA) on doctors' neckties. Med J Malaysia 2009; 64: 233-235

## **High prevalence of Methicillin-resistant Staphylococcus aureus (MRSA) on doctors' neckties**

Koh KC<sup>1,\*</sup>, Husni S<sup>1</sup>, Tan JE<sup>1</sup>, Tan CW<sup>1</sup>, Kunaseelan S<sup>1</sup>, Nuriah S<sup>1</sup>, Ong KH<sup>1</sup>, Morad Z<sup>1</sup>

<sup>1</sup>Department of Internal Medicine, Clinical School, International Medical University, Seremban, Negeri Sembilan, Malaysia

\*Department of Internal Medicine, Clinical School, International Medical University, Seremban, Negeri Sembilan, Malaysia

### **Abstract**

We set out to investigate whether neckties worn by doctors are more likely to be contaminated with Methicillin resistant Staphylococcus aureus (MRSA) compared to neckties worn by preclinical medical undergraduates who have never been exposed to a hospital environment. We discovered that more than half (52%) of neckties worn by doctors were contaminated with Staphylococcus and out of these, 62% of them were identified as MRSA. In contrast, none of the student's ties were contaminated with MRSA. Due to the high prevalence of staphylococcus detected on doctors' neckties, we recommend that health care workers do not wear neckties.

**Key words:** Doctors' neckties, Staphylococcus aureus, MRS

Kutsuzawa K, Tada S, Hossain S, Fukuda K, Maruyama K, Akiyama Y, Akaike T, Chowdhury EH. Disrupting actin filaments promotes efficient transfection of a leukemia cell line using cell adhesive protein-embedded carbonate apatite particles. *Anal Biochem* 2009;388(1):164-166

## **Disrupting actin filaments promotes efficient transfection of a leukemia cell line using cell adhesive protein-embedded carbonate apatite particles**

Kutsuzawa K<sup>1,2</sup>, Tada S<sup>1</sup>, Hossain S<sup>1</sup>, Fukuda K<sup>1,2</sup>, Maruyama K<sup>2</sup>, Akiyama Y<sup>2</sup>, Akaike T<sup>1</sup>, Chowdhury EH<sup>3,\*</sup>

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<sup>2</sup>Shizuoka Cancer Center Research Institute, Sunto-gun, Shizuoka 411-8777, Japan

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### **Abstract**

Tumor cells such as leukemia and lymphoma cells are obvious and attractive targets for gene therapy. Gene transfer and expression for cytokine and immunomodulatory molecules in various kinds of tumor cells have been shown to mediate tumor regression and antimetastatic effects. Moreover, genetically modified leukemia cells expressing costimulatory molecules or cytokines are likely to have significant therapeutic roles for patients with leukemia. One of the major hurdles to the successful implementation of these promising approaches is the lack of a suitable nanocarrier for transgene delivery and expression in a safe and effective manner. Recently, we reported on the development of a safe, efficient nanocarrier system of carbonate apatite that can assist both intracellular delivery and release of DNA, leading to very high level of transgene expression in cancer and primary cells. However, its efficiency in human lymphocytes is poor. We show here that nanocrystals of carbonate apatite, when electrostatically associated with fibronectin and/or E-cadherin-Fc, accelerated transgene delivery in a human T leukemia cell line (Jurkat). Moreover, transgene expression efficiency could be enhanced dramatically with the cell adhesive protein-embedded particles finally up to 150 times by selectively disrupting the actin filaments.

Lai N, Nalliah S, Jutti RC, Hla-Yee-Yee, Lim VKE. The educational environment and self-perceived clinical competence of senior medical students in a Malaysian Medical School *Educ for Health* 2009; 22: 1-15

## **The educational environment and self-perceived clinical competence of senior medical students in a Malaysian**

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### **Abstract**

#### Introduction:

The educational environment is widely considered to be a major factor affecting students' motivation and learning outcomes. Although students' perceptions of their educational environment are often reported, we are unaware of any published reports that relate this information to students' clinical competence, either self-perceived or objectively measured.

#### Objectives:

We aimed to correlate students' perceptions of their learning environment and their self-perceived competence in clinical, practical and personal skills, using validated scales.

#### Methods:

Subjects included a cohort of 71 final-year medical students who were posted to a peripheral campus affiliated with a district hospital. Two questionnaires were administered concurrently: a modified DREEM (50 items) to assess the learning environment and an abbreviated IMU Student Competency Survey (29 items) to examine self-perceived competence across a wide range of skills and work-readiness. We correlated the major domains in both surveys using Spearman's Correlation.

#### Findings:

Fifty-nine students (83%) completed the questionnaires. Comparing correlations of the five major domains of the modified DREEM questionnaire ("Perception of learning", "Perception of teachers", "Academic self-perception", "Perception of atmosphere" and "Social self-perception") with all subscales in the abbreviated IMU Student Competency Survey (clinical, practical, personal skills and overall work-readiness), we found that academic self-perception domain had the strongest correlations ( $r:0.405$  to  $0.579$ ,  $p:0.002$  to  $< 0.001$ ) and perception of teachers bears the weakest correlations ( $r:0.171$  to  $0.284$ ,  $p:0.254$  to  $0.031$ ). Self-perceived competence in practical skills in the IMU Student Competency Survey correlated the weakest with all domains of the modified DREEM ( $r:0.206$  to  $0.405$ ,  $p:0.124$  to  $0.002$ ).

#### Discussion and Conclusion:

The overall weak-to-moderate correlations between perceptions of learning environment and self-perceived clinical competence suggest that other factors might interact with the learning environment to determine students' confidence and achievements.

Lai NM, Teng CL. Competence in evidence-based medicine of final-year medical students following a clinically oriented training programme. *Hong Kong Med J* 2009; 15(5): 31-38

## **Competence in evidence-based medicine of final-year medical students following a clinically oriented training programme**

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### **Abstract**

#### **Objective:**

To assess the impact of a structured, clinically integrated evidence-based undergraduate medicine training programme using a validated tool.

#### **Design:**

Before and after study with no control group.

#### **Setting:**

A medical school in Malaysia with an affiliated district clinical training hospital.

**Participants:** Seventy-two medical students in their final 6 months of training (senior clerkship) encountered between March and August 2006.

#### **Intervention:**

Our educational intervention included two plenary lectures at the beginning of the clerkship, small-group bedside questiongenerating sessions, and a journal club in the paediatric posting.

#### **Main Outcome Measures:**

Our primary outcome was evidence-based medicine knowledge, measured using the adapted Fresno test (score range, 0-212) administered before and after the intervention. We evaluated the performance of the whole cohort, as well as the scores of different subgroups that received separate small-group interventions in their paediatric posting. We also measured the correlation between the students' evidence-based medicine test scores and overall academic performances in the senior clerkship.

#### **Results:**

Fifty-five paired scripts were analysed. Evidence-based medicine knowledge improved significantly post-intervention (means:pre-test, 84 [standard deviation, 24]; post-test, 122 [22];  $P<0.001$ ). Post-test scores were significantly correlated with overall senior clerkship performance ( $r=0.329$ ,  $P=0.014$ ). Lower post-test scores were observed in subgroups that received their smallgroup training earlier as opposed to later in the clerkship.



Conclusions:

Clinically integrated undergraduate evidence-based medicine training produced an educationally important improvement in evidence-based medicine knowledge. Student performance in the adapted Fresno test to some extent reflected their overall academic performance in the senior clerkship. Loss of evidencebased medicine knowledge, which might have occurred soon after small-group training, is a concern that warrants future assessment.

Lai Teng Ling, Su-Ann Yap, Radhakrishnan AK, Thavamanithevi Subramaniam, Hwee Ming Cheng, Uma D. Palanisamy. Standardised *Mangifera indica* extract is an ideal antioxidant. Food Chem 2009; 113: 1154-1159

## Standardised *Mangifera indica* extract is an ideal antioxidant

Lai Teng Ling<sup>1</sup>, Su-Ann Yap<sup>2</sup>, Ammu K. Radhakrishnan<sup>2,\*</sup>, Thavamanithevi Subramaniam<sup>3</sup>, Hwee Ming Cheng<sup>1</sup>, Uma D. Palanisamy<sup>4</sup>

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### Abstract

The standardised ethanolic and aqueous extracts of *Mangifera indica* leaf were prepared and analysed for their free radicals scavenging activity. The IC<sub>50</sub> values using the DPPH assay were 0.17 ± 0.02 and 0.49 ± 0.4 mg/ml, respectively. Standardised ethanolic extracts of the *M. indica* leaf had a solid content of 9.1 ± 0.7%, mangiferin concentration of 73 ± 0.17 mg/g of dry weight of the extract, free radical scavenging activity (IC<sub>50</sub>) of 0.17 ± 0.02 mg/ml and total phenolic content of 590 ± 48 mg/g of extract. The protection exhibited by these extracts against lipid peroxidation was superior to butylated hydroxytoluene (BHT) and commercial grape seed extract. These extracts at higher concentration did not exhibit pro-oxidant activities when compared to vitamin C. Our findings also show that the aqueous and ethanolic extracts of *M. indica* leaf protect NIH/3T3 cells from oxidant-induced cell death.

**Key words:** Apoptosis; Free radical scavenging; Lipid peroxidation; *Mangifera indica*; Mangiferin; Pro-oxidant; Apoptosis; Oxidant-induced cell death

Lee HL, Er HM, Radhakrishnan AK. In vitro anti-proliferative and antioxidant activities of stem extracts of *Pereskia bleo* (Kunth) DC (Cactaceae). *Malaysian J Sci*, 2009;28 (3): 225-239

## **In vitro anti-proliferative and antioxidant activities of stem extracts of *Pereskia bleo* (Kunth) DC (Cactaceae)**

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

### **Abstract**

*Pereskia bleo* (Kunth) DC (Cactaceae) (*Pereskia bleo*) is a tropical plant that has been reported to possess cytotoxic activity against several human cancer cell lines. This study was carried out to investigate the in vitro anti-proliferative and antioxidant activities of the stem extracts of the plant. All extracts did not show significant anti-proliferative activity in both normal mouse fibroblast (NIH/3T3) and mouse mammary cancer (4T1) cell lines. There was an increased rate of proliferation when the 4T1 cells were co-cultured with these extracts under certain conditions. Among the extracts, the t-butanol extract had the highest antioxidant property. All the extracts had the ability to protect normal mouse fibroblast cells against natural and oxidant-induced cell death by apoptosis.

**Key words:** *Pereskia bleo*, anti-proliferative, antioxidant, oxidant-induced cell death, apoptosis.

Leong CF, Aini-Ardena M, Cheong SK, Norris N. Effect of pyridostigmine (Mestinon) on human platelet aggregation. *Malaysian J Pathol* 2009; 31(1): 45-52

## **Effect of pyridostigmine (Mestinon) on human platelet aggregation**

Leong CF<sup>1,\*</sup>, Aini-Ardena M<sup>1</sup>, Cheong SK<sup>2</sup>, Norris N<sup>1</sup>

<sup>1</sup>Department of Pathology, Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia

<sup>2</sup>Department of Internal Medicine, International Medical University, Kuala Lumpur, Malaysia

### **Abstract**

#### **Introduction:**

Normal platelet functions are critical for achieving primary haemostasis. Numerous medications have been shown to affect platelet functions. Pyridostigmine (Mestinon), an orally active cholinesterase inhibitor that is commonly used to treat myasthenia gravis has been documented to cause epistaxis and prolonged bleeding after a cut in anecdotal reports. This study was initiated after a patient diagnosed to have myasthenia gravis, developed multiple bruises a week after being started on Mestinon. The objective of this study was to investigate the effect of Mestinon on platelet aggregation stimulated with various agonists in vitro.

#### **Materials and Methods:**

A stock solution of Mestinon was prepared by dissolving Mestinon tablet in normal saline. A serial dilution of Mestinon solutions was then prepared from this stock solution. Fresh whole blood from a normal healthy individual was added to this series of diluted Mestinon solutions. These samples were then tested for platelet aggregation using Chrono-log platelet impedance aggregometer with various platelet agonists. Mestinon-free whole blood sample was used for control. The patient's whole blood sample taken at the time of bruises was also tested for platelet aggregation using the same method.

#### **Results:**

The results showed that in the presence of pyridostigmine (Mestinon), platelet aggregation was inhibited in response to ADP and collagen stimulations. However, when agonists such as ristocetin and arachidonic acid were used, aggregation of platelets was detectable even though the degree of aggregation was relatively reduced when compared with control samples. This pattern of anti-platelet aggregation was also seen in the patient sample.

#### **Conclusion:**

Pyridostigmine interferes with human platelet aggregation and uncommonly in susceptible patient may result in bleeding tendency. Thus, healthcare workers need to be aware of this uncommon side effect of pyridostigmine.

**Key words:** pyridostigmine, myasthenia gravis, anti-platelet aggregation, platelet function study.

Liew SM, Tong SF, Lee VKM, Ng CJ, Leong KC, Teng CL. Text messaging reminders to reduce non-attendance in chronic disease follow-up: a clinical trial. *Brit J Gen Pract* 2009; 59: 916-920

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

Liew SM<sup>1,\*</sup>, Tong SF<sup>2</sup>, Lee VKM<sup>3</sup>, Ng CJ<sup>1</sup>, Leong KC<sup>4</sup>, Teng CL<sup>3</sup>

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### **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 followup, 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 controlled trial (RCT); reminder systems; cellular phone.

Lim LY, Vidnovic N, Ellisen LW, Leong CO. Mutant p53 mediates survival of breast cancer cells. *Brit J Cancer* 101(9): 1606-1612

## **Mutant p53 mediates survival of breast cancer cells**

Lim LY<sup>1</sup>, Vidnovic N<sup>2</sup>, Ellisen LW<sup>2</sup>, Leong CO<sup>1</sup>

<sup>1</sup>International Medical University, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

<sup>2</sup>Massachusetts General Hospital Cancer Center, Harvard Medical School, Boston, MA, USA

### **Abstract**

#### **Background:**

p53 is the most commonly mutated tumour-suppressor gene in human cancers. Unlike other tumour-suppressor genes, most p53 cancer mutations are missense mutations within the core domain, leading to the expression of a full-length mutant p53 protein. Accumulating evidence has indicated that p53 cancer mutants not only lose tumour suppression activity but also gain new oncogenic activities to promote tumourigenesis.

#### **Methods:**

The endogenous mutant p53 function in human breast cancer cells was studied using RNA interference (RNAi). Gene knockdown was confirmed by quantitative PCR and western blotting. Apoptosis was evaluated by morphological changes of cells, their PARP cleavage and annexin V staining.

#### **Results:**

We show that cancer-associated p53 missense mutants are required for the survival of breast cancer cells. Inhibition of endogenous mutant p53 by RNAi led to massive apoptosis in two mutant p53-expressing cell lines, T47D and MDA-MB-468, but not in the wild-type p53-expressing cells, MCF-7 and MCF-10A. Reconstitution of an RNAi-insensitive mutant p53 in MDA-MB-468 cells completely abolished the apoptotic effects after silencing of endogenous mutant p53, suggesting the specific survival effects of mutant p53. The apoptotic effect induced by mutant p53 ablation, however, is independent of p63 or p73 function.

#### **Conclusions:**

These findings provide clear evidence of a pro-survival 'gain-of-function' property of a subset of p53 cancer mutants in breast cancer cells.

**Key words:** p53; breast cancer; gain of function; p63; p73; apoptosis

## **Criticality of tasks in a staff nurse's work profile**

Lim Pek Hong

International Medical University, Bukit Jalil, Kuala Lumpur

### **Abstract**

A survey was carried out on four state hospitals in West Malaysia to find out the respondents' view about the criticality of tasks in the staff nurses' work profile related to the critical areas necessary for the professional development of staff nurses. A questionnaire consisting of 30 tasks in the staff nurses' work profile was distributed to 1163 respondents (a response rate of 86.66%). Respondents were required to rate the importance of each of the 30 tasks in the staff nurses' work profile along a Likert scale of 1-7 (1 for "totally not important" to 7 for "extreme importance"). The respondents ranked all tasks as important with mean scores above 4.4. Tasks involving nursing ability in organising themselves and working together in caring for the patients, and the technical and nursing skills received the highest priority while tasks related to research and audit activities were given the lowest.

The findings had projected clearly a higher focus in clinical activities, compared to research and audit activities. Highlighting "research and audit" activities is essential. As nursing advances in education, clinical practice and science, the relevance of research and audit activities will be more obvious.



## **Occupational infections**

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<sup>1</sup>Division of Pathology, International Medical University, Malaysia

### **Abstract**

Many infections are associated with occupations. Involvement in a particular occupation may place the person at higher direct risk of contracting certain infections. In some instances the life-style associated with the occupation results in a higher risk of exposure to the infection. The link between the infection and the workplace is often missed by the attending physician. This may be due to a lack of awareness on the part of the physician. Sometimes a direct link can be difficult to prove without the use of sophisticated molecular epidemiological tests. This has led to gross under-diagnosis and under-reporting of such cases. It is however important that occupational infections be diagnosed as adequate preventive measures need to be implemented. Furthermore the patient may be eligible for monetary compensation under the relevant occupational safety laws of the country.

**Key words:** Infection, occupation, infectious diseases

Loh DSY, Er HM, Chen YS. Mutagenic and antimutagenic activities of aqueous and methanol extracts of *Euphorbia hirta*. *J Ethnopharmacol* 2009; 126: 406-414

## Mutagenic and antimutagenic activities of aqueous and methanol extracts of *Euphorbia hirta*

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### Abstract

*Euphorbia hirta* (*E. hirta*) is a weed commonly found in tropical countries and has been used traditionally for asthma, bronchitis and conjunctivitis. However, one of the constituents in this plant, quercetin, was previously reported to be mutagenic. This work aimed to determine the level of quercetin in the aqueous and methanol plant extracts and to investigate the mutagenic effects of quercetin and the extracts in the Ames test utilising the mutant *Salmonella typhimurium* TA98 and TA100 strains. The antimutagenic activity of *Euphorbia hirta* aqueous and methanol extracts was also studied in *Salmonella typhimurium* TA98. HPLC analyses showed that quercetin and rutin, a glycosidic form of quercetin, were present in the acid-hydrolysed methanol extract and non-hydrolysed methanol extract respectively. The quercetin concentration was negligible in both non-hydrolysed and acid-hydrolysed aqueous extracts. The total phenolic contents in *Euphorbia hirta* were determined to be 268 and 93 mg gallic acid equivalent (GAE) per gram of aqueous and methanol extracts, respectively. Quercetin (25 µg/mL) was found to be strongly mutagenic in *Salmonella typhimurium* TA98 in the absence and presence of S-9 metabolic activation. However, both the aqueous and methanol extracts did not demonstrate any mutagenic properties when tested with *Salmonella typhimurium* TA98 and TA100 strains at concentrations up to 100 µg/mL in the absence and presence of S-9 metabolic activation. In the absence of S-9 metabolic activation, both the extracts were unable to inhibit the mutagenicity of the known mutagen, 2-nitrofluorene, in *Salmonella typhimurium* TA98. On the other hand, the aqueous extracts at 100 µg/mL and methanol extracts at 10 and 100 µg/mL exhibited strong antimutagenic activity against the mutagenicity of 2-aminoanthracene, a known mutagen, in the presence of S-9 metabolic activating enzymes. The results indicated that these extracts could modulate the xenobiotic metabolising enzymes in the liver at the higher concentrations.

**Key words:** *Euphorbia hirta*; Mutagenic activity; Antimutagenic activity; Phenolic content; HPLC

Marshall AG, McCarthy MM, Brishnehan KM, Rao V, Batia LM, Gupta M, Das S, Mitra NK, Chaudhuri JD. Effect of gestational ethanol exposure on parvalbumin and calretinin expressing hippocampal neurons in a chick model of fetal alcohol syndrome. *Alcohol* 2009; 43(2): 147-161

## **Effect of gestational ethanol exposure on parvalbumin and calretinin expressing hippocampal neurons in a chick model of fetal alcohol syndrome**

Marshall AG<sup>1</sup>, McCarthy MM<sup>1</sup>, Brishnehan KM<sup>1</sup>, Rao V<sup>2</sup>, Batia LM<sup>1</sup>, Gupta M<sup>3</sup>, Das S<sup>4</sup>, Mitra NK<sup>5</sup>, Chaudhuri JD<sup>1,\*</sup>

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### **Abstract**

Fetal alcohol syndrome (FAS), a condition occurring in some children of mothers who have consumed alcohol during pregnancy, is characterized by physical deformities and learning and memory deficits. The chick hippocampus, whose functions are controlled by interneurons expressing calcium-binding proteins parvalbumin (PV) and calretinin (CR), is involved in learning and memory mechanisms. Effects on growth and development and hippocampal morphology were studied in chick embryos exposed to 5% and 10% ethanol volume/volume (vol/vol) for 2 or 8 days of gestation. There was a significant dose-dependent reduction ( $P < .05$ ) in body weight and mean number per section of PV and CR expressing hippocampal neurons in ethanol-exposed chicks, without alterations in neuronal nuclear size or hippocampal volume, compared appropriate controls. Moreover, when chicks exposed to 5% ethanol for 2 and 8 days of gestation were compared, no significant differences were found in body parameters or neuronal counts. Similarly, exposure to 10% ethanol did not induce any significant changes in chicks exposed for 2 or 8 gestational days. Thus, these results suggest that gestational ethanol exposure induces a reduction in the mean number per section of PV and CR expressing hippocampal neurons, and could be a possible mechanism responsible for learning and memory disorders in FAS.

**Key words:** FAS; Chicks; Hippocampus; Learning; Memory; Parvalbumin; Calretinin

Mitra NK, How HS, Nadarajah VD. Effect of concurrent application of heat, swim stress and repeated dermal application of chlorpyrifos on the hippocampal neurons in mice. *Folia Neuropathol* 2009; 47(1): 60-68

## **Effect of concurrent application of heat, swim stress and repeated dermal application of chlorpyrifos on the hippocampal neurons in mice**

Mitra NK<sup>1,\*</sup>, How HS<sup>1</sup>, Nadarajah VD<sup>2</sup>

<sup>1</sup>Human Biology Department, International Medical University, International Medical University, Kuala Lumpur, Malaysia

<sup>2</sup>Research & Postgraduate Studies Department, International Medical University, Kuala Lumpur, Malaysia

### **Abstract**

Dermal absorption of chlorpyrifos (CPF), an organophosphate (OP) pesticide, is important because of its popular use. Stress has been reported to exacerbate neurotoxic effects of certain OP pesticides; however, quantitative studies to corroborate this are not reported. This study correlates the changes in acetylcholinesterase (AChE) levels and neuronal counts in areas of the hippocampus to consecutive exposure of stress, heat and CPF. Male mice (60 days) were segregated into six groups: one control, one stress control, and four treated groups (n=10). CPF was applied in doses of 1/2 and 1/5 of dermal LD50 (E1 and E2) over the tail of mice under occlusive bandages for 3 weeks. Stress control [(s) C] mice were subjected to swim stress at 38 degrees C (6 mins/day, 3 weeks). (s) E1 and (s) E2 were subjected to swim stress before CPF application. Blood and brain AChE levels were estimated using a spectrofluorometric method (Amplex Red). Pyramidal neurons of the cornu ammonis of the hippocampus under Nissl stain from histological sections were counted per unit area of section and analyzed statistically using one way ANOVA. Swim stress at 38 degrees C aggravated reduction of serum AChE by dermal exposure to CPF by 19.7%. Neurons of CA3 and CA1 regions of the hippocampus showed significant reduction in neuronal counts in (s) E1 and (s) E2 groups compared to E1 and E2 groups. Whereas application of CPF 1/2 dermal LD50 (E1) showed significant reduction of neuronal counts only in the CA3 area.

**Key words:** Dermal toxicity, chlorpyrifos, swim stress, heat, cholinesterase inhibition, hippocampus, histomorphometry

Montazeri S, Nalliah S, Radhakrishnan AK, Zainur Rashid Z, Kumar K. Maternal and fetal outcome in treated gestational diabetes mellitus. *Mal J Obstet Gynaecol* 2009; 8(17):11-24

## **Maternal and fetal outcome in treated gestational diabetes mellitus**

Shabnam Montazeri<sup>1,2</sup>, Sivalingam Nalliah<sup>1</sup>, Ammu Radhakrishnan<sup>2</sup>, Zainur Rashid Z<sup>1</sup>, Krishna Kumar<sup>3</sup>

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<sup>2</sup>Department of Pathology, International Medical University, Malaysia

<sup>3</sup>Department of Obstetrics and Gynaecology, Hospital Tuanku Jaafar (HTJ), Malaysia

### **Abstract**

**Background:**

Gestational diabetes mellitus (GDM) is a major public health concern affecting both maternal and fetal health

**Methods:**

This was a prospective case-control study to compare the prenatal outcome of pregnant women with treated gestational diabetes mellitus and normal pregnancy. Women with singleton pregnancies with or without glucose intolerance attending the obstetrics clinic of Hospital Tuanku Jaafar (HTJ) (Malaysia) were recruited according to exclusion and inclusion criteria and followed up to six weeks after delivery.

**Results:**

The results showed that GDM mothers were older, of higher parity and higher BMI than mothers with normal pregnancy. Ethnic distribution did not differ in the two study groups. There were no significant difference in the incidence of antenatal complications and pregnancy outcomes. Neonatal and maternal outcomes were almost similar in the two groups.

**Conclusion:**

The pregnancy outcome in the treated GDM group was comparable with the non diabetic population.

**Key words:** Gestational diabetes mellitus (GDM), treatment, pregnancy outcomes

Nadarajah VD, Richard GLY, Min, Judson JP, Ravindran Jegasothy, Elena HP Ling. Maternal plasma soluble fms-like tyrosine kinase-1 and placental growth factor levels as biochemical markers of gestational hypertension for Malaysian mothers. *J Obstet Gynaecol Res* 2009; 35(5): 855-863

## **Maternal plasma soluble fms-like tyrosine kinase-1 and placental growth factor levels as biochemical markers of gestational hypertension for Malaysian mothers**

Nadarajah VD<sup>1,\*</sup>, Richard GLY, Min<sup>1</sup>, John P. Judson<sup>1</sup>, Ravindran Jegasothy<sup>2</sup>, Elena HP Ling<sup>1</sup>

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<sup>2</sup>Obstetrics and Gynaecology Department, Hospital Tuanku Jaafar, Jalan Rasah, Negeri Sembilan, Malaysia

### **Abstract**

#### **Aims:**

To establish baseline levels of maternal plasma soluble fms-like tyrosine kinase-1 (sFlt-1) and placental growth factor (PlGF) among normotensive Malaysian mothers and to compare the marker levels between normotensives and mothers with gestational hypertension (GH).

#### **Methods:**

Plasma sFlt-1 and PlGF were measured by enzyme-linked immunosorbent assay in an unmatched, case-control study. The results were subjected to normality testing and analyzed by Mann-Whitney U-tests.

#### **Results:**

Among normotensive mothers, both sFlt-1 and PlGF showed a general increase in levels from the 24th to 32nd weeks of pregnancy. PlGF levels in normotensive mothers with gestational diabetes mellitus were reduced compared to those without the disease, while levels of sFlt-1 were elevated. Mothers with GH had reduced levels of PlGF with increased levels of sFlt-1 when compared to normotensive mothers. Among the normotensive mothers followed up until delivery, the inverted pattern of reduced PlGF and increased sFlt-1 marker levels was found in 40% of those who developed GH later in pregnancy.

#### **Conclusions:**

Plasma levels of sFlt-1 and PlGF in normotensive mothers may be influenced by gestational diabetes mellitus and GH. GH mothers show an inverted pattern of marker levels compared to normotensive mothers.

**Key words:** gestational hypertension (GH); normotensive Malaysian mothers; placental growth factor (PlGF); pre-eclampsia; soluble Fms-like tyrosine kinase-1 (sFlt-1)

Nagaraja HS, Radhakrishnan AK, Lee H, Kumar P. Flavonoid quercetin protects against swimming stress-induced changes in oxidative biomarkers in the hypothalamus of rats. *Eur J Pharmacol* 2009;621(1-3):46-52

## **Flavonoid quercetin protects against swimming stress-induced changes in oxidative biomarkers in the hypothalamus of rats**

Nagaraja HS<sup>1,\*</sup>, Radhakrishnan A<sup>2</sup>, Lee H<sup>3</sup>, Kumar P<sup>1</sup>

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### **Abstract**

Quercetin is a bioflavonoid abundant in onions, apples, tea and red wine and one of the most studied flavonoids. Dietary quercetin intake is suggested to be health promoting, but this assumption is mainly based on mechanistic studies performed in vitro. The objective of this study was to investigate the effect of quercetin on stress-induced changes in oxidative biomarkers in the hypothalamus of rats. Adult male Sprague Dawley rats were subjected to forced swimming stress for 45 min daily for 14 days. Effect of quercetin at three different doses (10, 20 and 30 mg/kg body weight) on serum corticosterone and oxidative biomarkers (lipid hydroperoxides, antioxidant enzymes and total antioxidants) was estimated. Swimming stress significantly increased the serum corticosterone and lipid hydroperoxide levels. A significant decrease in total antioxidant levels and super oxide dismutase, glutathione peroxidase and catalase levels was seen in the hypothalamus after stress and treatment with quercetin significantly increased these oxidative parameters and there was a significant decrease in lipid hydroperoxide levels. These data demonstrate that forced swimming stress produced a severe oxidative damage in the hypothalamus and treatment with quercetin markedly attenuated these stress-induced changes. Antioxidant action of quercetin may be beneficial for the prevention and treatment of stress-induced oxidative damage in the brain.

**Key words:** Stress; Quercetin; Oxidative stress; Antioxidant; Hypothalamus

Nagaraja HS, Tan Mun Yee, Chakravarthi S, Nagarajah L. Protective effect of N-acetylcysteine on cyclosporine A induced changes in lipid hydroperoxide levels and renal dysfunction in rats. Arch Med Sci 2009; 5(1): 16-22

## **Protective effect of N-acetylcysteine on cyclosporine A induced changes in lipid hydroperoxide levels and renal dysfunction in rats**

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### **Abstract**

#### Introduction:

One of the major adverse effects of long-term cyclosporine is chronic nephrotoxicity. Renal damage due to cyclosporine treatment is an important clinical challenge. N-acetylcysteine (NAC) is a potent antioxidant and has been shown to reduce free radical injury. The aim of this study was to investigate the possible protective role of NAC treatment on cyclosporine-induced renal damage using biochemical and histopathological parameters.

#### Material and Methods:

Adult male albino rats were randomly assigned to control (saline treated), cyclosporine (20 mg/kg/day), NAC alone (20 mg/kg/day) and cyclosporine + NAC (20 mg/kg/day) groups. Rats were sacrificed at the end of the experiment and serum was analyzed for urea, uric acid, creatinine and blood urea nitrogen (BUN). Total antioxidant level and lipid hydroperoxides were also estimated. Histopathological changes in the kidneys were assessed semiquantitatively.

#### Results:

Cyclosporine treatment produced a significant increase in serum creatinine, urea, uric acid and BUN, indicating a marked renal injury. Treatment with N-acetylcysteine significantly reduced these changes. Total antioxidant level decreased significantly both in serum and kidneys after cyclosporine. Administration of NAC significantly prevented these changes. Lipid hydroperoxide level increased significantly with cyclosporine and the changes were reduced when supplemented with NAC. Cyclosporine treatment produced severe glomerular atrophy, blood vessel thickening and moderate tubular necrosis. N-acetylcysteine significantly prevented these histopathological changes in the kidneys.

#### Conclusions:

Depletion of antioxidants and increased lipid hydroperoxides play an important role in cyclosporine-induced renal damage. N-acetylcysteine supplementation significantly reduced cyclosporine-induced structural and functional impairment of the kidneys. Concurrent use of antioxidant N-acetylcysteine may be of therapeutic value to minimize cyclosporine-induced nephrotoxicity.

**Key words:** cyclosporine, N-acetylcysteine, nephrotoxicity, antioxidants, lipid hydroperoxides.



Nagaraja HS, Ravinder Jassal, Chakravarthi S, Thanikachalam PM, Nagarajah L, Anupama BK. Apigenin reduces Cyclosporine- A induced changes in lipid hydroperoxides and total antioxidants in Sprague-Dawley rats. J Chinese Clin Med 2009; 4(1): 26-31

## **Apigenin reduces Cyclosporine-A induced changes in lipid hydroperoxides and total antioxidants in Sprague-Dawley rats**

Nagaraja HS<sup>1</sup>, Ravinder Singh Jassal<sup>1</sup>, Srikumar Chakravarthi<sup>2</sup>, Thanikachalam P<sup>2</sup>, Nagarajah Lee<sup>3</sup>, Anupama BK<sup>4</sup>

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### **Abstract**

#### **Objective:**

Cyclosporine-A is the first choice immunosuppressant universally used for the prevention of allograft rejection in solid organ transplants and immune mediated diseases. However, with increasing use, evidence has accumulated that cyclosporine therapy is associated with a variety of side effects. In the present study we aim to investigate the role of bioflavonoid apigenin on cyclosporine-A induced changes in oxidative stress markers in the rats.

#### **Methods:**

Rats were divided into control, cyclosporine-A alone (25mg/kg body weight), apigenin alone (20mg/kg body weight) and cyclosporine-A with apigenin groups. Cyclosporine-A was injected intraperitoneally and apigenin was given orally in the treatment groups daily, for 21 d. Serum total antioxidants, lipid hydroperoxides, superoxide dismutase and glutathione peroxidase were measured by enzyme-linked immunosorbent assay methods.

#### **Results:**

There was a significant increase in serum lipid hydroperoxide levels ( $P < 0.01$ ) and a statistically significant decrease in total antioxidants ( $P < 0.05$ ), superoxide dismutase ( $P < 0.01$ ) and glutathione peroxidase ( $P < 0.01$ ) levels in the cyclosporine treated rats. Concurrent treatment with apigenin significantly decreased the lipid hydroperoxides ( $P < 0.01$ ) and increased the total antioxidants ( $P < 0.05$ ) and superoxide dismutase ( $P < 0.01$ ) and glutathione peroxidase ( $P < 0.01$ ) levels.

#### **Conclusions:**

Cyclosporine-A treatment produced a severe oxidative stress. There was a reduction in the total antioxidants and antioxidant enzymes in blood. Apigenin reduced the cyclosporine-A induced oxidative damage. Bioflavonoid, apigenin may be used therapeutically to reduce the tissue and organ damage caused by cyclosporine-A induced oxidative stress.

**Key words:** cyclosporine; apigenin; antioxidants, lipid hydroperoxides

Nalliah S, Loh KY, Japaraj RP, Mukundan K. Is there a place for selective vaginal delivery in Malaysian Hospitals: experiences from the Ipoh Hospital. *J Matern Fetal Neo Med* 2009; 22(2): 129-136

## **Is there a place for selective vaginal delivery in Malaysian Hospitals: experiences from the Ipoh Hospital?**

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<sup>3</sup>Department of Obstetrics and Gynecology, General Hospital IPOH, Perak, Malaysia

### **Abstract**

#### **Background:**

The 'Term Breech Trial' (TBT) results of 2001 have impacted on the mode of delivery of breech with a low threshold for caesarean delivery (CD) worldwide.

#### **Aims:**

The trends in mode of delivery in developing countries have also changed. The aims of this retrospective analysis of all breech presentation was to see if similar trends are seen in Ipoh Hospital in Malaysia and if perinatal outcome is affected by mode of delivery.

#### **Methods:**

All breech pregnancies presenting in the labour at the Ipoh Hospital, Malaysia, irrespective of gestation or booking status were analysed with respect to mode of delivery, fetal outcome and maternal mortality.

#### **Results:**

Out of 4886 breech presentation between 1992 and 2004, 3725 cases were evaluable. The prevalence of breech at birth was 3%. Vaginal breech deliveries decreased from 70.4% in 1994 to 13.1% in 2004. Consequently, CDs rose to 86.9% in CDs. There were 107 perinatal deaths (1994-2004) in the series and the crude perinatal mortality rate (PNMR) was four times higher than the hospital PNMR (11.4/1000 in 2004).

#### **Conclusion:**

Although the CD rates rose exponentially with the release of the 'TBT', the mode of delivery did not impact on better PNMR in breech cases in this hospital. The need for selective vaginal births for breech, increased use of external cephalic version and the long implications of a uterine scar in future pregnancies in the 'shared antenatal care in the local context in a developing country is discussed.

**Key words:** Breech, vaginal delivery, caesarean delivery, external cephalic version, perinatal mortality

Nassar I, Thanickachalam PM, Judson JP, Segarra I. Reduced exposure of imatinib after co-administration with acetaminophen in mice. *Indian J Pharmacol* 2009; 412(4): 167-172

## Reduced exposure of imatinib after co-administration with acetaminophen in mice

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### Abstract

#### Purpose:

Imatinib is an efficacious drug against chronic myeloid leukemia (CML) and gastrointestinal stromal tumor (GIST) due to selective inhibition of c-KIT and BCR-ABL kinases. It presents almost complete bioavailability, is eliminated via P450-mediated metabolism and is well tolerated. However, a few severe drug-drug interactions have been reported in cancer patients taking acetaminophen.

#### Materials and Methods:

Male ICR mice were given 100 mg/kg single dose of imatinib orally or imatinib 100 mg/kg (orally) coadministered with acetaminophen intraperitoneally (700 mg/kg). Mice were euthanized at predetermined time points, blood samples collected, and imatinib plasma concentration measured by HPLC.

#### Results:

Imatinib AUC<sub>0-12</sub> was 27.04 ± 0.38 mg·h/ml, C<sub>max</sub> was 7.21 ± 0.99 mg/ml and elimination half-life was 2.3 hours. Acetaminophen affected the imatinib disposition profile: AUC<sub>0-12</sub> and C<sub>max</sub> decreased 56% and 59%, respectively and a longer half-life was observed (5.6 hours).

#### Conclusions:

The study shows a pharmacokinetic interaction between acetaminophen and imatinib which may render further human studies necessary if both drugs are administered concurrently to cancer patients.

**Key words:** Acetaminophen, chronic myeloid leukemia, drug-drug interaction, gastrointestinal stromal tumor, imatinib, pharmacokinetics

Nayanatara A K, Nagaraja HS, C Ramaswamy, K Bhagyalakshmi, M Ramesh Bhat, N Harini. Estimation of tissue lipid peroxidation level and organ weight in litters of Wistar rats exposed to prenatal alcohol ingestion. J Physiological Biomed Sci 2009; 21: 44-47

## **Estimation of tissue lipid peroxidation level and organ weight in litters of Wistar rats exposed to prenatal alcohol ingestion**

Nayanatara A K\*, Nagaraja HS<sup>2</sup>, C Ramaswamy<sup>1</sup>, K Bhagyalakshmi<sup>1</sup>, M Ramesh Bhat<sup>1</sup>, N Harini<sup>1</sup>

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### **Abstract**

Alcohol (ethanol) is among some of the potentially harmful factors that are transmitted directly to the embryo. The present study was aimed to find out the changes in the tissue lipid peroxidation level and organ weight in the litters exposed to prenatal alcohol consumption. Adult female wistar rats (n = 6/group) were divided into control group (saline treated) and experimental group (ethanol treated 2 g/kg BW). Changes in the body weight, number of litters delivered, birth weight of the litters, organ weight and lipid peroxidation level was evaluated in both the groups. Ethanol intoxication produced a significant increase (P<0.0001) in the body weight. The birth weight of the litters (P<0.0001) and the number of litters (P<0.0001) were significantly (P<0.0001) reduced when compared to the saline treated control group.

There was a significant increase in the weight of the liver, brain and the testis in the treated group litters. Also in these litters, a significant elevation in the lipid peroxidation level was observed in the liver, brain, kidneys and testis. The present data suggest that prenatal ethanol exposure might activate the free radical process leading the increase in the lipid peroxidation level and consequent decrease in the organ weight in these litters.

**Key words:** ethanol, lipid peroxidation, organ weight, litters, Wistar rats

Nayanatara AK, Nagaraja HS, C Ramaswamy, K Bhagyalakshmi, M Ramesh Bhat, G Damodara, V Mantur. Effect of chronic unpredictable stressors on some selected lipid parameters and biochemical parameters in Wistar rats. J Chinese Clin Med 2009; 4(2): 92-97

## **Effect of chronic unpredictable stressors on some selected lipid parameters and biochemical parameters in Wistar rats**

Nayanatara AK<sup>1,\*</sup>, Nagaraja HS<sup>2</sup>, C Ramaswamy<sup>1</sup>, K Bhagyalakshmi<sup>1</sup>, M Ramesh Bhat<sup>1</sup>, G Damodara<sup>3</sup>, V Mantur<sup>1</sup>

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<sup>3</sup>Department of Physiology, KS Hegde Medical College, Mangalore

### **Abstract**

#### **Objective:**

Exposure to stressful situations is among the most common human experiences. Chronic stress exposure has detrimental effect on several cell functions. In this study, we investigated the changes in selected biochemical and lipid parameters following exposure to chronic unpredictable stressors for 10 days.

#### **Methods:**

Wistar strain adult albino rats were divided into two group as non-stressed group (n = 8) and stressed group (n = 8). The stressed groups were exposed to 10 days of chronic unpredictable stress (CUS). At the end of the 10th day the animals were anaesthetized and blood samples were collected through cardiac puncture. The blood samples of both the groups were analyzed for selected biochemical and lipid parameters. The results were analyzed statistically by using student t-test. P<0.05 was considered as significant.

#### **Results:**

All the biochemical (serum glutamic oxaloacetic transaminase (SGOT), serum glutamic pyruvic transaminase (SGPT), blood sugar, tissue malondialdehyde (MDA) and serum lipid profile (cholesterol, serum triglyceride (TG), low-density lipoproteins (LDL) were significantly increased in the stressed group when compared to the non stressed group. The serum high-density lipoproteins (HDL) level did not show any statistically significant changes. The weight of the adrenal gland also showed a significant increase in the stressed group.

#### **Conclusion:**

The present data indicate that cumulative effect of repeated chronic unpredictable stressors on a daily basis for a period of 10 days increases the biochemical and lipid parameters.

**Key words:** chronic unpredictable stressors; serum glutamic oxaloacetic transaminase; serum glutamic pyruvic transaminase; blood sugar; tissue malondialdehyde; serum lipic profile

Nazimah I, Che Hatikah Che Hanafi, Murizah Md Zain, Muhd Rushdn Md Noor. Universal versus selective screening for the detection of gestational diabetes mellitus in a Malaysian population. *Malaysia Fam Physician* 2009;4(2&3):83-87

## **Universal versus selective screening for the detection of gestational diabetes mellitus in a Malaysian population**

Nazimah Idris<sup>1\*</sup>, Che Hatikah Che Hanafi<sup>2</sup>, Murizah Md Zain<sup>2</sup>, Muhd Rushdn Md Noor<sup>2</sup>

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### **Abstract**

**Objectives:**

To compare the efficacy of two screenings methods for gestational diabetes mellitus, namely the universal screening using 50g Glucose Challenge Test to that of selective screening based on risk factors.

**Methodology:**

A cross-sectional study involving 366 women between 24 weeks to 28 weeks gestation who attended a community health clinic for their antenatal care between January to May 2003. All women had their risk factors for gestational diabetes identified at the beginning of the study, after which they underwent a 50g Glucose Challenge Test and subsequently the 75g Oral Glucose Tolerance Test.

**Results:**

The prevalence of gestational diabetes mellitus in this population was 18.3%. The universal screening had a sensitivity of 83.5% and specificity of 82.6% compared to that of selective screening, 76.1% and 60.9% respectively.

Of all patients diagnosed to have gestational diabetes mellitus, 23.8% were without risk factors.

**Conclusion:**

Universal screening strategy using 50g glucose challenge test is a better predictor of gestational diabetes mellitus compared to risk-based selective screening.

**Key words:** Gestational diabetes, glucose challenge test, risk-factors, screening, glucose tolerance test.

Norazah A, Izayu N R, Mohamed K A G, Azura H, Salbiah N, Mohamad N A, Nurahan M, Lim VKE. Characteristics of community- and hospital-acquired methicillin-resistant *Staphylococcus aureus* strains carrying SCCmec type IV isolated in Malaysia. *J Med Microbiol* 2009; 58: 1213-1218

## **Characteristics of community- and hospital-acquired methicillin-resistant *Staphylococcus aureus* strains carrying SCCmec type IV isolated in Malaysia**

Norazah A<sup>1,\*</sup>, Izayu N R<sup>1</sup>, Mohamed K A G<sup>2</sup>, Azura H<sup>3</sup>, Salbiah N<sup>4</sup>, Mohamad N A<sup>5</sup>, Nurahan M<sup>6</sup>, Lim VKE<sup>7</sup>

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<sup>7</sup>International Medical University, Kuala Lumpur, Malaysia

### **Abstract**

Community-acquired methicillin-resistant *Staphylococcus aureus* occurring among hospital isolates in Malaysia has not been reported previously. Since CA-MRSA reported worldwide has been shown to carry SCCmec type IV and V, we conducted a study to determine the SCCmec types of MRSA strains collected from November 2006 until June 2008. From a total of 628 MRSA isolates, 20 were of SCCmec type IV, while the rest were of type III. Further characterization of SCCmec type IV strains revealed 11 sequence types, including ST22, with the majority being ST30/PVL-gene positive. Eight of 9 CA-MRSA were ST30, 1 was ST80 and all were sensitive to co-trimoxazole and gentamicin. Five new sequence types assigned as ST1284, ST1285, ST1286, ST1287, and ST1288 were discovered and this may suggest the emergence of novel clones of MRSA circulating in Malaysian hospitals. The discovery of ST22 strain is a cause of concern because of its ability to replace the existing predominant clones in certain geographical regions.

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 Nutr* 2009; 101(6): 810-815

## **Comparable effects on immune modulation following daily supplementation with tocotrienol-rich fraction (TRF) or alpha-tocopherol in normal human volunteers**

Radhakrishnan, AK<sup>1,\*</sup>, Lee AL<sup>1</sup>, Wong PK<sup>2</sup>, Kaur J<sup>3</sup>, Aung H<sup>3</sup>, Nesaretnam K<sup>4</sup>

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### **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  $\alpha$ -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  $\alpha$ -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- $\gamma$  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  $\alpha$ -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;  $\alpha$ -Tocopherol; Tocotrienol-rich fraction; Cytokines; Immune system



Raja Lope RJ, Boo NY, Rohana J, Cheah FC. A quality assurance study on the administration of medication by nurses in a neonatal intensive care unit. Singapore Med J 2009; 50: 68-72

## **A quality assurance study on the administration of medication by nurses in a neonatal intensive care unit**

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### **Abstract**

#### Introduction:

This study aimed to determine the rates of non-adherence to standard steps of medication administration and medication administration errors committed by registered nurses in a neonatal intensive care unit before and after intervention.

#### Methods:

A baseline assessment of compliance with ten standard medication administration steps by neonatal intensive care unit nurses was carried out over a two-week period. Following this, a re-education programme was launched. Three months later, they were re-assessed similarly.

#### Results:

The baseline assessment showed that the nurses did not carry out at least one of the ten standard administrative steps during the administration of 188 medication doses. The most common steps omitted were having another nurse to witness drug administration (95 percent); labelling of individual medication prepared prior to administration (88 percent), checking prescription charts against patients' identification prior to administration (85 percent) and visually inspecting a patient's identification tag (71 percent). Medication administration errors occurred in 31 percent (59/188) of doses administered, all due to imprecise timing of medication administration. There were no resultant adverse outcomes. Following implementation of remedial measures, there was a significant reduction in non-adherence of seven of the ten medication administration steps and the rate of medication administration errors (p-value is less than 0.001). However, in 94 percent of doses administered, the nurses still did not get a witness to countercheck calculations of drug dosages before administration.

#### Conclusion:

Non-compliance with the standard practice of medication administration by nurses is common but can be improved by continuing re-education and monitoring, plus the implementation of a standard operating procedure.

**Key words:** medication administration errors, medication errors, neonatal intensive care unit, quality assurance, standard operating procedure

Roberts NJ, Mohamed Z, Wong PS, Johnson M, Loh LC, Partridge MR. The development and comprehensibility of a pictorial asthma action plan. *Patient Educ Couns* 2009; 74(1): 12-18

## **The development and comprehensibility of a pictorial asthma action plan**

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<sup>c</sup>International Medical University, Kuala Lumpur, Malaysia

### **Abstract**

#### **Objective:**

Written action plans are regarded as an important part of asthma self-management education and yet they may not be understood by those with limited literacy skills. The study was designed to produce an understandable pictorial asthma action plan.

#### **Methods:**

With advice from a group of doctors and nurses a 'standard' written action plan was translated by a medical artist into a series of pictorial images. These were assessed using the techniques of guessability and translucency by a series of adults attending a specialist asthma clinic in London and the same process was subsequently used to assess comprehensibility of the images and plans amongst a group of Somalis living in Manchester, UK and Malaysians in Seremban, Malaysia

#### **Results:**

Guessability testing showed that the majority of pictograms were well understood by each of the study group. Translucency testing revealed close agreement with intended meaning for the majority of the images. One image, depicting extra use of reliever medication scores less well in all populations; two other images scored less well in the Somali and Malaysian groups and reflect less use of certain inhaler devices in other countries. The overall plan was well understood by all patients who were able to adequately recount the appropriate actions to take in different clinical scenarios.

#### **Conclusions:**

We have developed a pictorial asthma action plan understandable by 3 different populations of patients with asthma.

#### **Practice implications:**

Pictorial representations have been shown by other studies in other situations to be an effective method of reinforcing the spoken word. The pictorial asthma action plan developed for this study has been shown to be comprehensible, personalised to the individual in the usual fashion. It is how suitable for further evaluation in clinical practice.

**Key words:** Self-management, asthma, pictorial, health literacy

S Sulaiha SA, Zainur Rashid Z. Vaginal vault prolapse: understanding its complexity and surgical options for treatment. *Mal J Obstet Gynaecol* 2009; 8(18): 1-12

## **Vaginal vault prolapse: understanding its complexity and surgical options for treatment**

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Department of Obstetrics & Gynaecology, International Medical University, Seremban

### **Abstract**

Vaginal vault prolapse is increasingly seen in women in Malaysia due to the increasing number of them having some form of pelvic surgery. Its correction usually requires surgery as it is noted that conservative management is rather suboptimal. However, the appropriate options could only be selected depending on the identification of the specific defect of pelvic structures and its severity affecting the patient's life. The techniques available vary from the traditional sling methods to the latest using grafts and mesh which can be performed either vaginally or transabdominally. Any option that is chosen should aim to correct the anatomical defects, preserve vaginal function and alleviate the patient's symptoms to improve her quality of life.

**Key words:** Vaginal vault prolapse, vaginal prolapse, pelvic floor surgery, vaginal sling surgery, mesh-sling vaginal surgery, abdominal sling surgery

Swarnalatha Dugasani, Pichika MR, Nadarajah VD, Madhu K Balijepalli, Satyanarayana Tandra, Jayaveera N Korlakunta. Comparative antioxidant and anti-inflammatory effects of [6]-gingerol, [8]-gingerol, [10]-gingerol and [6]-shogaol. *J Ethnopharmacol* 2009 3;127(2):515-20

## Comparative antioxidant and anti-inflammatory effects of [6]-gingerol, [8]-gingerol, [10]-gingerol and [6]-shogaol

Swarnalatha Dugasani<sup>1</sup>, Mallikarjuna R Pichika<sup>3,\*</sup>, Vishna D Nadarajah<sup>3</sup>, Madhu K Balijepalli<sup>3</sup>, Satyanarayana Tandra<sup>1</sup>, Jayaveera N Korlakunta<sup>2</sup>

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<sup>3</sup>International Medical University, No. 126, Jalan 19/155B, Bukit Jalil 57000, Kuala Lumpur, Malaysia

### Abstract

Ethnopharmacological relevance:

*Zingiber officinale* Rosc. (Zingiberaceae) has been traditionally used in Ayurvedic, Chinese and Tibb-Unani herbal medicines for the treatment of various illnesses that involve inflammation and which are caused by oxidative stress. Although gingerols and shogaols are the major bioactive compounds present in *Zingiber officinale*, their molecular mechanisms of actions and the relationship between their structural features and the activity have not been well studied.

Aim of the study:

The aim of the present study was to examine and compare the antioxidant and anti-inflammatory activities of gingerols and their natural analogues to determine their structure–activity relationship and molecular mechanisms.

Materials and methods:

The *in vitro* activities of the compounds [6]-gingerol, [8]-gingerol, [10]-gingerol and [6]-shogaol were evaluated for scavenging of 1,1-diphenyl-2-picrylhydrazyl (DPPH), superoxide and hydroxyl radicals, inhibition of N-formyl-methionyl-leucyl-phenylalanine (f-MLP) induced reactive oxygen species (ROS) production in human polymorphonuclear neutrophils (PMN), inhibition of lipopolysaccharide induced nitrite and prostaglandin E<sub>2</sub> production in RAW 264.7 cells.

Results:

In the antioxidant activity assay, [6]-gingerol, [8]-gingerol, [10]-gingerol and [6]-shogaol exhibited substantial scavenging activities with IC<sub>50</sub> values of 26.3, 19.47, 10.47 and 8.05  $\mu$ M against DPPH radical, IC<sub>50</sub> values of 4.05, 2.5, 1.68 and 0.85  $\mu$ M against superoxide radical and IC<sub>50</sub> values of 4.62, 1.97, 1.35 and 0.72  $\mu$ M against hydroxyl radical, respectively. The free radical scavenging activity of these compounds also enhanced with increasing concentration ( $P < 0.05$ ). On the other hand, all the compounds at a concentration of 6  $\mu$ M have significantly inhibited ( $P < 0.05$ ) f-MLP-stimulated oxidative burst in PMN. In addition, production of inflammatory mediators (NO and PGE<sub>2</sub>) has been inhibited significantly ( $P < 0.05$ ) and dose-dependently.

Conclusions:

6-Shogaol has exhibited the most potent antioxidant and anti-inflammatory properties which can be attributed to the presence of  $\alpha,\beta$ -unsaturated ketone moiety. The carbon chain length has also played a significant role in making 10-gingerol as the most potent among all the gingerols. This study justifies the use of dry ginger in traditional systems of medicine.

**Key words:** [6]-Gingerol; [8]-Gingerol; [10]-Gingerol; [6]-Shogaol; Antioxidant; Anti-inflammatory

Syed Imran A, Mohamamed Azmi Hassali, Noorizan Abdul Aziz. An assessment of the knowledge, attitudes, and risk perceptions of Pharmacy students regarding HIV/AIDS. *Am J Pharm Educ* 2009; 73(1):15

## **An assessment of the knowledge, attitudes, and risk perceptions of Pharmacy students regarding HIV/AIDS**

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<sup>1</sup>School of Pharmacy and Health Sciences, International Medical University (IMU)

<sup>2</sup>School of Pharmaceutical Sciences, University Sains Malaysia (USM)

### **Abstract**

#### **Objective:**

To evaluate the level of knowledge, attitudes, and risk perceptions of University Sains Malaysia final-year pharmacy students regarding human immunodeficiency virus (HIV) and acquired immunity deficiency syndrome (AIDS).

#### **Method:**

A cross-sectional study among pharmacy students. Data were analyzed with Chi-square to find difference at p value < 0.05.

#### **Results:**

The majority of students (83.07%) responded showing a difference in gender and race. Students showed low willingness (9.2%) to assist patients and low confidence (36.1%) in their education about HIV/AIDS patients. Students recommended HIV testing for health care professionals (69.4%) and patients (75.9%) before surgical procedures. Students knew little about Post Exposure Prophylaxis (18.5%) or about the time for HIV to develop into AIDS (57.4%). About 40% of students were unaware of the inability of antivirals to treat HIV/AIDS. Students had low awareness for opportunistic infections (18.5%), and low agreement on competency to treat and counsel HIV patients (12.9%).

#### **Conclusion:**

The study highlighted students' misconceptions, negative attitudes, and risk perceptions towards HIV/AIDS.

**Key words:** acquired immunity deficiency syndrome, human immunodeficiency virus, prophylaxis

Syed Shahzad H, Syed Imran A, Bukhari NI, Cheah WWL. Use of complementary and alternative medicine among patients with chronic diseases at outpatient clinics. *Complementary Therapies in Clin Practice* 2009; 15(3): 152-157

## **Use of complementary and alternative medicine among patients with chronic diseases at outpatient clinics**

Hassan Syed Shahzad<sup>1,\*</sup>, Ahmed Syed Imran<sup>1</sup>, Bukhari NI<sup>1</sup>, Cheah WWL<sup>1</sup>

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### **Abstract**

#### **Objective:**

The primary objective of this study was to evaluate the use of complementary and alternativemedicine among patients with chronicdiseases at outpatientclinics. Another aim was to identify demographic and socio-economic factors that are associated with CAM use.

#### **Research Design and Methods:**

Face-to-face interviews of conveniently selected patients with chronicdiseases were conducted in outpatientclinics of a general hospital. A validated data collection form was used to gather the information regarding pattern, perception, reasons, and perceived effect of CAM on the disease state. The other relevant information including demographics, diagnosis, indication, and treatment were collected from the patients' medical records.

#### **Results:**

Out of 321 patients interviewed in this study, 205 patients were using some form of CAM, and thus the utilisation rate was 63.9%. A significant number of patients (35.5%) were using CAM for diabetes mellitus. Thirteen types of CAM were identified in the study with the most common being vitamins supplements (48.2%), herbal medicines (26.4%), ginseng (4.7%) and traditional Chinese medicine (4.0%). The patients with higher education level, higher income, and aged more than 50 years were independently associated with CAM use. Majority of the patients (77.6%) reported that their condition had improved by using CAM.

#### **Conclusion:**

The present study confirms the high frequency of CAM use among patients with chronicdiseases in a Malaysian public hospital. The popularity of CAM indicated the patients' preference towards holistic approach to health care.

**Key words:** Complementary and alternativemedicine; Chronicdiseases; Outpatient; Clinics

Tada S, Chowdhury EH, Cho CS, Akaike T. pH-sensitive carbonate apatite as an intracellular protein transporter. *Biomaterials* 2009;31(6):1453-1459

## **pH-sensitive carbonate apatite as an intracellular protein transporter**

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<sup>3</sup>Department of Agricultural Biotechnology, Seoul National University, Seoul 151-921, Republic of Korea

### **Abstract**

The transfer of specific proteins into living cells to enable the regulation of cell function or the tracking of the intracellular distribution of proteins is a desirable objective for offering a potential alternative to gene therapy. Here, protein/carbonate apatite complexes were successfully fabricated for intracellular delivery of functional proteins since the carbonate apatite being highly water solubility under an acidic condition could easily be dissolved in endosomes following endocytosis, thus releasing the electrostatically associated proteins in cytoplasm. In this study, we characterized protein/carbonate apatite complexes as an intracellular protein delivery system and we checked intracellular delivery of proteins by carbonate apatite nanoparticles in vitro. Fluorescently-labeled bovine serum albumin as a model protein was effectively delivered into nearly 100% of HeLa cells by the simple addition of protein/carbonate apatite complexes to the cells. Confocal microscopic imaging suggested the endosomal release of protein delivered with carbonate apatite. And intracellularly delivered  $\beta$ -galactosidase did not lose its enzymatic activity. These results suggested that intracellular delivery system of protein using pH-sensitive carbonate apatite carrier with a very simple procedure will be a highly effective method to the biological and clinical researches.

**Key words:** Carbonate apatite; pH sensitive; Protein delivery; Biocompatibility; Bioactivity; Endosomal release



Tan NH, Ponnudurai G, Fung SY. Serum kinetics of *Calloselasma rhodostoma* (Malayan pit viper) venom components in rabbit. *J Venom Anim Toxins* 2009; 15: 340-346

## **Serum kinetics of *Calloselasma rhodostoma* (Malayan pit viper) venom components in rabbit**

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<sup>1</sup>Department of Molecular Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia

<sup>2</sup>International Medical University, Kuala Lumpur, Malaysia

### **Abstract**

The serum kinetics of *Calloselasma rhodostoma* (Malayan pit viper) venom – specifically two of its components, the major hemorrhagin (rhodostoxin) and a thrombin-like enzyme – was examined in a rabbit by double-sandwich enzyme-linked immunosorbent assay (ELISA). The animal received intramuscularly a 1.0-mg/kg dose of *C. rhodostoma* venom. The venom level in serum peaked 12 hours after the injection, followed by a gradual decline and finally reached low rates 72 hours after administration. The serum kinetic profile of venom components, however, did not correspond to the profile of the whole *C. rhodostoma* venom. The serum levels of the *C. rhodostoma* thrombin-like enzyme increased slowly and peaked only 48 hours post-injection. Then both thrombin-like enzyme and rhodostoxin remained at relatively high levels 72 hours after administration. Data suggest that various venom components bind to tissue at the injection site with different affinities and that conjugated venom components were continuously released into circulation at different rates. The prolonged high serum levels of both thrombin-like enzyme and hemorrhagin are consistent with the clinical picture of prolonged clotting deficiency in severe cases of *C. rhodostoma* envenomation. Our results also suggest that since venom components are being released into and eliminated from the circulation at different rates, the “average composition” of the venom antigen in the circulation changes over time. This implies that data from ELISA quantification of antigen levels from serum venom employing “whole venom” as reagent must be interpreted with care.

**Key words:** *Calloselasma rhodostoma* venom, thrombin-like enzyme, hemorrhagin, serum kinetics, rabbit, ELISA.

Tan KL. Knowledge, attitude and practice on breastfeeding in Klang, Malaysia. Int Med J 2009; 8(1): 17-21

## **Knowledge, attitude and practice on breastfeeding in Klang, Malaysia**

Tan KL<sup>1</sup>

<sup>1</sup>International Medical University, Malaysia

### **Abstract**

#### **Introduction:**

In Klang, a district in the state of Selangor in Peninsular Malaysia, the effects of westernization and urbanization in recent years have had an impact on infant feeding. The objective of this study was to evaluate the practice, knowledge and attitude to breastfeeding and to assess factors associated with breastfeeding among women in Klang, Malaysia.

#### **Materials and Methods:**

A cross-sectional study was carried out between June and October 2006 involving 220 women with infants aged six months from two randomly selected health clinics were selected and interviewed. Data on socio-demographic, infant factors, infant feeding in the first six months of life, knowledge and attitude towards breastfeeding were collected.

#### **Results:**

Exclusive breastfeeding was reported by 32.8%, mixed feeding was reported by 14.5% and infant formula feeding was reported by 52.7% of the respondents. Chinese women were more likely not to practice exclusive breastfeeding compared to Malay women (odds ratio 18.27, 95% CI: 3.95, 84.54) while working women were more likely not to practice exclusive breastfeeding compared to non working women (odds ratio 3.75, 95% CI: 1.64, 8.55). Positive association with not exclusive breastfeeding included women with high household income and women with male infants. Malaysian women had a positive attitude but work place and short maternity leave had a negative impact on breastfeeding.

#### **Conclusion:**

Women of Chinese ethnicity, working, from high family income and with male infants were less likely to exclusively breastfeed. Adopting facilitatory measures at hospitals and work place could increase the rate of exclusive breastfeeding.

Tan KL. Factors associated with non-exclusive breastfeeding among 4-week post-partum mothers in Klang District, Peninsular Malaysia. *Malaysian J Nutr* 2009; 15(1): 11-18

## **Factors associated with non-exclusive breastfeeding among 4-week post-partum mothers in Klang District, Peninsular Malaysia**

Tan KL<sup>1,\*</sup>

<sup>1</sup>Department of Community Medicine, International Medical University, Bukit Jalil 57000 Kuala Lumpur, Malaysia

### **Abstract**

This is a cross-sectional study which investigated the association between non-exclusive breastfeeding and maternal, paternal, obstetric and infant factors. Data on maternal, paternal, obstetric and infant factors were collected through face-to-face interview using a structured questionnaire from 498 mothers with four-week-old infants who attended government clinics in Klang district between 17 and 28 July 2006. The prevalence of non-exclusive breastfeeding at four weeks was 45.8%. Factors significantly associated with non-exclusive breastfeeding at four weeks included Indian ethnic mother (OR = 4.06), working mother (OR = 3.55), mother from high household income (OR = 1.90), mother who smokes (OR = 7.27), primiparous (OR = 1.97), infant not sharing a bed with mother (OR = 1.75) and infant born prematurely (OR = 7.69). Identification of risk factors should assist in targeting women who are at increased risk of non-exclusive breastfeeding.

Tan KL. Bed sharing among mother-infant pairs in Klang District, Peninsular Malaysia and its relationship to breast-feeding. *J Dev Behav Pediatr* 2009; 30(5): 420-425

## **Bed sharing among mother-infant pairs in Klang District, Peninsular Malaysia and its relationship to breast-feeding**

Tan KL

International Medical University

### **Abstract**

#### **Objective:**

The aim of the study was to determine the prevalence of mother-infant bed sharing in Klang district, Peninsular Malaysia and to identify factors associated with bed sharing.

#### **Method:**

This was a cross-sectional study involving 682 mother-infant pairs with infants up to 6 months attending government clinics in Klang district, Peninsular Malaysia. Data were collected by face-to-face interview using a pretested structured questionnaire for a 4-month period in 2006. Data regarding maternal, paternal, obstetric, infant, occupancy, breast-feeding characteristics, and bed-sharing practice were collected. Data on bed sharing were based on practice in the past 1-month period. Bed sharing was defined as an infant sharing a bed with mother, and infant must be within arms reach from the mother, whereas a bed was defined as either a sleeping mattress placed on the bed frame or placed on the floor. The prevalence of bed sharing was estimated. Relationship and magnitude of association between independent factors and bed sharing were examined using odds ratio and 95% confidence interval. Logistic regression analysis was used to control for confounding factors.

#### **Results:**

The prevalence of bed sharing among mothers with infants aged between 1 and 6 months was 73.5% (95% confidence interval: 70.0-76.7). In multivariate analysis, urban/rural differences, mothers' ethnicity, occupation, family income, husbands' support on bed sharing, number of children younger than 12 years staying in the house, and breast-feeding were associated with bed sharing.

#### **Conclusions:**

These factors need to be considered in analyzing the overall risks and benefits of bed sharing, paying attention to breast-feeding practices.

**Key words:** bed sharing, breast-feeding, mother-infant pairs, Malaysia.

Tan KL, SN Ghani, FM Moy. The prevalence and characteristics associated with mother-infant bed-sharing in Klang District, Malaysia. Med J Malaysia 2009;64(4):311-315

## **The prevalence and characteristics associated with mother-infant bed-sharing in Klang District, Malaysia**

Tan KL<sup>1,\*</sup>, SN Ghani<sup>2</sup>, FM Moy<sup>2</sup>

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<sup>2</sup>Department of Social and Preventive Medicine, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia

### **Abstract**

This was a cross-sectional study to determine the prevalence and characteristics of mother-infant bed-sharing practice in Klang district, Malaysia. Data was collected by face-to-face interview using a structured questionnaire for a four month period in 2006. A total of 682 mother-infant pairs attending government health clinics were included in the study. Data regarding socio-demographic characteristics of the mothers, information on the infants, bed-sharing and breastfeeding practices were collected. The mean maternal age was 28.4 +/- 5.1 years while the mean infant gestational age was 38.8 +/- 1.8 weeks. The study showed the prevalence of bed-sharing was 73.5% (95% CI: 70.0, 76.7). In multivariate analysis; area of interview, maternal occupation, family income, breastfeeding and infant birth weight were associated with bed-sharing after adjusted for maternal ethnicity, age, marital status, educational level, parity, infant gender and infant gestational age. In conclusion, bed-sharing is a common practice in Klang district, Malaysia, not specific to ethnicity, but strongly associated with low family income and breastfeeding.

**Key words:** Bed-sharing, Maternal factors, Infant factors, Breastfeeding, Malaysia

Tan SC, Yiap BC. DNA, RNA, and protein extraction: the past and the present. *J Biomed Biotechnol* 2009; 2009: 574398

## **DNA, RNA and protein extraction: the past and the present**

Tan Siun Chee<sup>1</sup>, Beow Chin Yiap<sup>2</sup>

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<sup>2</sup>School of Pharmacy and Health Science, Division of Pharmacy, International Medical University, No.126, Jalan 19/155B, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

### **Abstract**

Extraction of DNA, RNA, and protein is the basic method used in molecular biology. These biomolecules can be isolated from any biological material for subsequent downstream processes, analytical, or preparative purposes. In the past, the process of extraction and purification of nucleic acids used to be complicated, time-consuming, labor-intensive, and limited in terms of overall throughput. Currently, there are many specialized methods that can be used to extract pure biomolecules, such as solution-based and column-based protocols. Manual method has certainly come a long way over time with various commercial offerings which included complete kits containing most of the components needed to isolate nucleic acid, but most of them require repeated centrifugation steps, followed by removal of supernatants depending on the type of specimen and additional mechanical treatment. Automated systems designed for medium-to-large laboratories have grown in demand over recent years. It is an alternative to labor-intensive manual methods. The technology should allow a high throughput of samples; the yield, purity, reproducibility, and scalability of the biomolecules as well as the speed, accuracy, and reliability of the assay should be maximal, while minimizing the risk of cross-contamination.

Wong FL, Boo NY, Ainoon O, Wong MK. Comparison of detection of glucose-6-phosphate dehydrogenase deficiency using fluorescent spot test, enzyme assay and molecular method for prediction of severe neonatal hyperbilirubinaemia. Singapore Med J 2009; 50: 62-67

## **Comparison of detection of glucose-6-phosphate dehydrogenase deficiency using fluorescent spot test, enzyme assay and molecular method for prediction of severe neonatal hyperbilirubinaemia**

Wong FL<sup>1</sup>, Boo NY<sup>2</sup>, Ainoon O<sup>1</sup>, Wong MK<sup>2</sup>

<sup>1</sup>Department of Pathology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Jalan Yacob Latif, Kuala Lumpur 50600, Malaysia

<sup>2</sup>Department of Paediatrics, IMU

### **Abstract**

#### **Introduction:**

This study aimed to compare the detection rates of glucose-6-phosphate dehydrogenase (G6PD) deficiency in neonates by fluorescent spot test (FST), enzyme assay and molecular methods, and to identify which method was a significant predictor of severe hyperbilirubinaemia.

#### **Methods:**

74 term infants of Chinese descent admitted with severe hyperbilirubinaemia (total serum bilirubin equal or greater than 300 micromol/L) and 125 healthy term infants born in the hospital without severe hyperbilirubinaemia were recruited into the study. Specimens of blood were collected from each infant for FST, G6PD enzyme assay and TaqMan® minor groove binder single nucleotide polymorphism genotyping assay.

#### **Results:**

26 (13.1 percent) infants were diagnosed to have G6PD deficiency by FST. They had significantly lower median enzyme levels (0.8 IU/g Hb, interquartile range [IQR] 0.4–4.3) than those diagnosed to be normal (12.0 IU/g Hb, IQR 10.3–15.8) (p-value is less than 0.0001). Based on the enzyme assay, 39 (19.6 percent) infants had G6PD deficiency at an enzyme cut-off level of less than 8.5 IU/g Hb. G6PD mutation was detected in 27 (13.6 percent) infants. Logistic regression analysis showed that the only significant predictors of severe hyperbilirubinaemia were G6PD deficiency based on a cut-off level of less than 8.5 IU/g Hb (adjusted odds ratio [OR] 5.3, 95 percent confidence interval [CI] 2.4–11.4; p-value is less than 0.0001) and exclusive breast-feeding (adjusted OR 11.4, 95 percent CI 3.1–42.4; p-value is less than 0.0001). The gender and birth weight of infants, FST results, G6PD mutation and the actual G6PD enzyme levels were not significant predictors.

#### **Conclusion:**

A G6PD enzyme level of less than 8.5 IU/g Hb is a significant predictor of severe hyperbilirubinaemia.

**Key words:** glucose-6-phosphate dehydrogenase, fluorescent spot test, enzyme level, hyperbilirubinaemia, neonatal jaundice

Zailinawati AH, Teng CL, Chung YC, Teow TL, Lee PN, Sidhu JK. Daytime sleepiness and sleep quality among Malaysian medical students. *Med J Malaysia* 2009; 62(2): 108-110

## **Daytime sleepiness and sleep quality among Malaysian medical students**

Zailinawati AH<sup>1</sup>, Teng CL<sup>1</sup>, Chung YC<sup>2</sup>, Teow TL<sup>2</sup>, Lee PN<sup>2</sup>, Jagmohni KS<sup>1</sup>

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<sup>2</sup>Final year medical students in International Medical University, Malaysia

### **Abstract**

Poor sleep quality and daytime somnolence is reported to be associated with cardiovascular events, road traffic accident, poor academic performance and psychological distress. Some studies documented that it is prevalent in most populations but its frequency among medical students has not been documented in Malaysia. This is a self-administered questionnaire survey of medical students from International Medical University, Malaysia. Daytime sleepiness of medical students was assessed using Epworth Sleepiness Scale (ESS). Student scoring ESS >11 was regarded as having excessive daytime sleepiness. Psychological distress was measured using 12-item General Health Questionnaire (GHQ-12). A total of 799 medical students participated in this survey (response rate 69.5%). Daytime sleepiness occurred in 35.5%, psychological distress was present in 41.8% and 16.1% reported bad sleep quality. Daytime sleepiness was significantly more common among the clinical students, those with self-reported bad sleep quality and psychological distress; but unrelated to the number of hours sleep at night. We have documented high prevalence of daytime sleepiness, poor sleep quality and psychological distress. Higher frequency among clinical students and the significant relationship with psychological distress suggest possible link to the stressful clinical training.

**Key words:** Sleep quality, Daytime sleepiness, Medical students



Zainur Rashid Z, S Sulaiha SA, Lew KG, Nurhana S The dilemma of pregnant ladies with breast cancer. E-International Med J 2009;3(2):3-7

## **The dilemma of pregnant ladies with breast cancer**

Zainur Rashid Z<sup>1</sup>, S Sulaiha S A<sup>1</sup>, Lew K G<sup>2</sup>, Nurhana S<sup>2</sup>

<sup>1</sup>Department of Obstetrics & Gynaecology, International Medical University, MALAYSIA

<sup>2</sup>Research Students, International Medical University, MALAYSIA

### **Abstract**

Gestational breast cancer (GBC) or pregnancy-associated breast cancer was defined as breast cancer diagnosed during pregnancy and within 1 year of delivery. Breast cancer is the second commonest cancer after cervical seen in pregnancy and lactation. Nevertheless, the incidence is low and accounts for approximately 1 in 3000 of pregnancies. A delay in diagnosis is common and 70% to 89% of patients with operable primary lesions already have positive axillary lymph nodes. Breast cancer identified during pregnancy can be extremely distressing for the mother despite it has similar course of disease and prognosis seen in nonpregnant women of the same age and stage of disease. Diagnostic and treatment options should be carefully decided to prevent further harm to the mother or any potential risk to the developing fetus.

**Key words:** Breast cancer; Pregnancy; Diagnosis; Management