Abstracts of Dissertations
December 2009 Exit Assessment Exercise

A REVIEW OF PATIENTS WITH HEMATOLOGICAL MALIGNANCY ADMITTED TO THE INTENSIVE CARE UNIT OF A TERTIARY HOSPITAL DURING THE YEARS 2005-2009: OUTCOME AND PROGNOSTIC INDICATORS

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Objectives   The aim of this study is to assess the mortality of patients with hematological malignancy admitted to the Intensive Care Unit of the Princess Margaret Hospital, and to determine the prognostic indictors in this population.

Patients and methods   The records of 58 patients with hematologic malignancy admitted to the Intensive Care Unit between January 2005 and March 2009 were reviewed retrospectively.   Variables at admission and during admission were collected, and evaluated for prognostic relevance by univariate and multivariate analyses.

Main results   Overall hospital mortality was 69%.   Survivors had a lower median Acute Physiology and Chronic Health Evaluation II score compared with the non-survivors (23.5 and 28.5 respectively; p=0.013).   The median Simplified Acute Physiology Scale score was also lower in the survivors (43.5 vs. 61; P=0.001), and likewise the median Sequential Organ Failure Assessment score (8 vs. 11; p= 0.001).

Multivariate analysis revealed mechanical ventilation (odds ratio 22.829, p = 0.001) and histological grading (odds ratio 8.088, p = 0.019) as significant prognostic factors of hospital mortality.   Utilizing these two predictors as building blocks for further analysis, the subgroup of patients with a combination of the two factors, i.e. high grade and ventilated, were identified to have a particularly poor prognosis compared with the other subgroups made out of different combinations (p = 0.001).

Conclusion   The hospital mortality rates of patients with hematological malignancy admitted to the Intensive Care Unit was high.   Necessity of mechanical ventilation and high histological grading were factors associated with mortality.   These prognostic indicators enable physicians to be better equipped while counseling patients and their families with regards to realistic estimates of prognosis, and informed choices regarding treatment limitations should the situation requires.

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IMPACT OF ANAEMIA AND BLOOD TRANSFUSION ON OUTCOMES IN PATIENTS WITH ANEURYSMAL SUBARACHNOID HAEMORRHAGE

Dr Tsang Ho Kai Patrick, Department of Medicine & Geriatrics, Tuen Mun Hospital (November 2009 Critical Care Medicine Exit Assessment Exercise)

Background   Anaemia is common among the critically ill. Previous clinical trials have demonstrated that a restrictive transfusion strategy targeting haemoglobin (Hb) concentration of 7-9g/dl is safe in critically ill patients. Nevertheless, some clinicians advocate a liberal blood transfusion strategy aiming at Hb>10g/dl for those with

neurocritical illness such as aneurysmal subarachnoid haemorrhage (aSAH), who may be sensitive to the deleterious effects of anaemia should vasospasm and delayed ischaemic neurological deficit occur. While the optimal transfusion trigger is still debatable, a recent study has suggested an appropriate transfusion threshold in aSAH may be affected by the presence of vasospasm.

Objectives   To assess whether the presence of anaemia or blood transfusion is associated with a worse outcome in patients with aSAH and to assess whether the presence of vasospasm affects the association between anaemia or blood transfusion and outcomes in patients with aSAH.

Design and Setting   Retrospective study in a mixed surgical and medical ICU unit in a tertiary hospital in Hong Kong

Patients and Measurements   Medical records of patients admitted to our unit between January 2005 and January 2009 with the principal diagnosis of aSAH were reviewed. Patients' demographics, neurological status on admission, initial finding on computer tomography (CT) of brain together with laboratory data on Hb level and the number of packed cell units transfused were documented. Clinical outcomes and complications were also recorded.

Results   98 patients with median age of 54.5years old were recruited. Anaemia (nadir Hb<10g/dl) was present in 58 patients (59.2%) while 31 patients (31.6%) had received blood transfusion. After adjusting for potential confounders with multiple logistic regression, both anaemia and blood transfusions were independent predictors of i)poor outcomes defined as the presence of in hospital death, vegetative state or severe disability (odd ratio [OR] for anaemia, 2.8; 95% confidence interval [CI] 1.2-6.6; p=0.02; OR for transfusion, 3.4; 95% CI, 1.5-8.5; p=0.01) and ii)combined outcomes of Glasgow Outcome Scale 1-3 and delayed infarctions (OR for anaemia, 2.4; 95% CI 1.0-5.7; p=0.04; OR for transfusion, 4.5; 95% CI, 1.5-13.1; p=0.01). The association between anaemia and poor outcomes was stronger in those without vasospasm while transfusion was a stronger predictor of poor outcomes in those with vasospasm.

Conclusions   Anaemia or transfusion was independently and significantly associated with poor outcomes in patients with aSAH. In the presence of vasospasm, blood transfusion was not associated with improved outcomes. Therefore, the use of vasospasm as a transfusion trigger cannot be justified in this study. Instead, its presence supported a restrictive blood transfusion strategy which may improve cerebral blood flow and cerebral oxygen delivery. Further randomized trials on different transfusion triggers and alternative blood conservation techniques in managing ICU anaemia in neurocritical patients are warranted.

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PSYCHOLOGICAL DISTURBANCES AND THEIR ASSOCIATIONS WITH HIGH RISK SEXUAL BEHAVIOURS IN SOCIAL HYGIENE CLINIC ATTENDEES
Dr. AU Wai Ming Angelina, Social Hygiene Service, Department of Health (December 2009 Dermatology and Venereology Exit Assessment Exercise)

Background and Objectives   Sexually transmitted infections (STI) are public health concerns. Psychological morbidities such as depression and anxiety were

common in patients attending sexually transmitted infections clinics in foreign studies. Depression can be associated with high risk sexual behaviours and STI. This study aims at finding any association between psychological morbidities, high risk sexual behaviours and STI diagnoses in attendees of Social Hygiene Clinics in Hong Kong.

Methods   374 Social Hygiene Clinics attendees in the New Territories of Hong Kong were offered a self-administered questionnaire containing the Hospital Anxiety and Depression Scale (HADS) and 4 questions on high risk sexual behaviours. Clinical records were reviewed to record any STI diagnoses made relating to that consultation.

Results   358 cases (161 males, 191 females) completed the data set were included in the analysis. Using a HADS threshold of 8, 57.3% (95% CI: 52.2-62.4%) and 46.4% (95% CI: 41.3-51.5%) had anxiety and depression respectively. No significant association was generated between anxiety, high risk sex and STI diagnosis. Depression was associated with trading money or drugs for sex (aOR=1.942; 95% CI: 1.106-3.412) but not other high risk behaviours such as multiple sexual partners and condom use. Presence of depression is not associated with an increase of sexually transmitted infections diagnosis (aOR=0.576; 95% CI: 0.379-0.877).

Conclusions   The prevalence of anxiety and depression among Social Hygiene Clinics attendees were much higher than the general population and the presence of depression is associated with trading money for sex. Early recognition of the sufferings may improve patients' satisfaction and health outcomes.

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A RETROSPECTIVE STUDY ON THE CO-INFECTION RATE OF CHLAMYDIA TRACHOMATIS UROGENITAL INFECTION AMONG PATIENTS DIAGNOSED TO HAVE GONORRHOEA ATTENDING SOCIAL HYGIENE CLINICS IN HONG KONG

Dr Kwan Chi Keung, Social Hygiene Service, Department of Health (Dermatology and Venereology December 2009 Exit Assessment Exercise)

Background   Both gonorrhoea and chlamydia urethritis present with dysuria and discharge. It is difficult to differentiate between them by history and clinical examination alone. Empirical treatment may induce drug resistance whereas complications and the spread of infections may be increased if treatment started only after the availability of the gonococcal culture and chlamydia PCR results that take around few weeks. A study to determine the co-infection rate may help to streamline the treatment strategy.

Objectives   The objectives are to determine (1) the sensitivity and specificity of microscopy in diagnosis of gonococcal urethritis, (2) the co-infection rate of chlamydia among patients with gonorrhoea and (3) their independent risk factors.

Methods   All available patients' records who attended the Social Hygiene Clinics with urogenital (urethral / cervical) smear done during July 2005 to June 2008 were reviewed. The results from Gram stain and microscopy were compared with gonococcal culture to determine the sensitivity and specificity of microscopy in diagnosis of gonorrhoea. For those positive *N. gonorrhoeae* cultures, concomitant chlamydia PCR results were reviewed to determine the co-infection rate of chlamydia among the gonorrhoea patients.

Results The overall sensitivity and specificity of microscopy for diagnosis of gonorrhoea is 91.0% and 99.3% respectively. The chlamydia co-infection rate with gonorrhoea is 22.2% (95% CI=20.7% - 23.7%) in which female, younger age ($\leq$ 25) and not using condom are the independent risk factors of the co-infection.

Conclusions Using a simple and cost-effective diagnostic tool of Gram stain and microscopy together with the knowledge of the co-infection rate of   hlamydia among gonorrhoea patients in this retrospective study, it is worthwhile to conduct a large scale prospective study to review whether empirical treatment should cover both gonococcal and chlamydial urethritis particularly in high risk groups such as female patients, young age group and those not using condom.

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RISK OF DEVELOPMENT OF DIABETES MELLITUS IN CHINESE WOMEN WITH PERSISTENT IMPAIRED GLUCOSE TOLERANCE AFTER GESTATIONAL DIABETES
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(November 2009 Endocrinology, Diabetes and Metabolism Exit Assessment Exercise)

Objectives This study is aimed to estimate the cumulative incidence and evaluate risk factors for development of diabetes mellitus (DM) in a group of Chinese women with persistent impaired glucose tolerance (IGT) after gestational diabetes (GDM).

Subjects and Methods The study population was derived from a cohort of 388 women with postpartum impaired glucose tolerance after GDM, being followed up in Diabetes Centre, Kwong Wah Hospital between January 2000 to December 2006. After initial postpartum (6 weeks) visit, high-risk women with persistent IGT were scheduled for annual follow-up until their last follow-up visits between July 2008 to December 2008 or until they developed DM as defined by ADA criteria 1997. Apart from standard diabetes education and 75 gram oral glucose tolerance test (OGTT), blood pressure, body mass index (BMI), waist circumference (WC) and metabolic indexes including fasting lipid profiles (included total cholesterol, triglycerides, LDL-C and HDL-C) and liver function tests (included transaminase) were measured during each follow-up visit. Patients with at least one 75gm OGTT tested during the follow-up interval were included for analysis. Demographic data and antepartum variables were retrieved from clinical records.

Results After a mean follow-up period of 53.1± 21.6 months (range: 13 to 108 months), 47 out of 238 women (19.7%) were included in the study. Life table analysis revealed that the cumulative incidence rates of diabetes were 55% after 9 years. Upon multivariate analysis, predictive factors for the development of type 2 diabetes were antepartum fasting and 2 hours post 75gm OGTT plasma glucose and 1 year post-delivery fasting plasma glucose while immediate postpartum glucose intolerance test was not predictive for future DM development.

Conclusions Significant proportion of women with GDM will develop abnormal glucose intolerance immediate after delivery. Those with persistent glucose intolerance 1 year after delivery had a much higher risk in developing future DM. Therefore, women with a history of GDM, particularly those with persistent glucose intolerance are worthy for regular surveillance for the development of DM.

A RETROSPECTIVE REVIEW ON THE NATURAL HISTORY OF PRIMARY HYPERPARATHYROIDISM AND THE OUTCOME OF MINIMALLY INVASIVE OPEN PARATHYROIDECTOMY IN A REGIONAL HOSPITAL
Dr Wong Lai Sze Alice, Department of Medicine, North District Hospital (November 2009 Endocrinology, Diabetes and Metabolism Exit Assessment Exercise)

Background   In the modern era of multichannel biochemical screening, the clinical paradigm of primary hyperparathyroidism (PHPT) has changed from a traditional disease of "bones, stones and groans" to a clinical profile of mostly asymptomatic state. The question of the possible consequences of nonintervention in asymptomatic patient is raised. The study of natural history of PHPT would shed light on this issue.

With the introduction of high quality sestamibi scans and availability of intraoperative parathyroid hormone (PTH) assay, minimally invasive open parathyroidectomy (MIOP) has now challenged the role of traditional approach of open parathyroidectomy. The local experience in MIOP would be reviewed.

Methods   Fifty seven patients with diagnosis of primary hyperparathyroidism (PHPT), who were still having active follow up in the Endocrine Clinics of Queen Elizabeth Hospital between July 2008 and December 2008, were identified.

A total of 169 patients who had parathyroidectomy in Queen Elizabeth Hospital, either by traditional open method or by minimally invasive technique, were recruited in this study. Among them, 85 patients had undergone MIOP. The cure rate, complication rate, operation time and length of stay in hospital in the MIOP group were compared with historical controls of 84 patients who had open surgery. The experience in use of intraoperative PTH assay and preoperative localization study would also be reviewed.

Results   i.) Analysis on the natural history of primary hyperparathyroidism
Fifty seven patients in the natural history group were followed up for 5.6 ± 3.1 years. There were no significant changes in biochemical parameters in the follow up period. At presentation, 29 patients had met criteria for surgery but opted for conservative management. Altogether in the natural history group, 22 patients (38.6%) had disease progression with development of new indication for surgery. Those with and without disease progression were similar in age, sex, serum calcium and parathyroid hormone concentrations and urinary calcium level at baseline. The proportion of subjects who had disease progression in those who met or did not meet surgical criteria at presentation was similar (37.9% versus 39.3%, respectively).

ii.) Analysis on the outcome of minimally invasive open parathyroidectomy (MIOP)
The cure rate of MIOP was 96.5%, which was comparable to the rate of 90.5% of the open parathyroidectomy (not statistically significant). The complication rate of permanent hypocalcaemia was 1.2% and 11.9% in MIOP and open parathyroidectomy respectively, which was statistically significant. The mean hospital stay and operation time in MIOP group were significantly shorter as compared with historical controls (2.46 days versus 5.16 days for length of stay; 86.6 minutes versus 113.7 minutes for operation time, respectively).

The sensitivity of localization study, using intraoperative finding as gold standard, for

ultrasound scan was 56.3%, sestamibi scan was 89.2% and computed tomography scan was 71.9%.

Conclusion   There were no significant differences in the biochemical parameters in the natural history group in the follow up period but some patients did show disease progression which could not be predicted by the baseline characteristics and whether surgical criterion was met on presentation. Regular monitoring of these patients is essential.

MIOP was shown to be an effective and safe method as compared with the traditional open parathyroidectomy, with reduction in operation time and length of hospital stay. Sestamibi scan was superior in sensitivity compared with ultrasound scan as a preoperative localization investigational tool.

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