

Abstracts of Dissertations December 2006 Exit Assessment Exercise

THE CHARACTERISTICS OF SPLENECTOMIZED PATIENTS RECEIVING VACCINATION AND THEIR SUBSEQUENT RISK OF INFECTIONS- A RETROSPECTIVE STUDY

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Background Splenectomized patients are at lifelong, increased risk of developing post-splenectomy sepsis. Overseas guidelines on vaccination have been developed to reduce its incidence.

Aim To assess the vaccination coverage and its impact on the splenectomized patients in a regional hospital in Hong Kong.

Method A retrospective review of hospital records between 1 May 1994 and 31 December 2005.

Results 77 patients underwent splenectomy from 1 May 1994 to 31 Dec 2005. Their median age was 58.4. Indications of splenectomy included cancer surgery (73%), trauma (18%), non-malignant hematological disorder (8%) and others (1%). Twenty-three patients (30%) were vaccinated. On multivariate analysis, the indications of splenectomy (non-malignant conditions) were found to have statistically significant association with vaccination. Upon follow-up, 11 episodes of post-splenectomy sepsis developed, making an overall incidence of 36.36 per 1000 person-years. On multivariate analysis, older age at splenectomy (rate ratio between consecutive age group = 2.45, 95% CI: 1.03-5.80, $p = 0.043$) and status of current smoking (rate ratio = 3.39, 95% CI: 1.00-11.46, $p = 0.049$) were found to have statistically significant association with severe infection. The association between the occurrence of severe infections and history of vaccination was not statistically significant (rate ratio = 0.19, 95% CI: 0.02-1.49, p -value = 0.076).

Conclusions The practice of post-splenectomy vaccination was less common as compared to overseas settings. Patients with non-malignant conditions were more frequently vaccinated. The benefit of vaccination could not be established from this study. Vaccination guidelines and asplenic registry may help standardize practice and facilitate research.

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A RETROSPECTIVE STUDY OF 52 PATIENTS WITH PHAEOCHROMOCYTOMA IN HONG KONG AND A REVIEW OF THE LITERATURE

Dr. Lau Yuen Fun, Emmy, Department of Medicine, Pamela Youde Nethersole Eastern Hospital (November 2006 Endocrinology, Diabetes and Metabolism Exit Assessment Exercise)

Background Pheochromocytoma is a rare catecholamine-producing tumor arising from chromaffin tissue located in the adrenal medulla or in the sympathetic nervous system. They are life threatening and often entail a diversity of clinical presentations.

Objective To perform a retrospective review on the clinical characteristics, diagnosis, localization, histopathological findings, management and long term outcome in patients with pheochromocytoma presenting to 3 regional hospitals on Hong Kong Island from 1981-2005.

Methods Medical records of patients with pheochromocytomas or paragangliomas removed surgically within the specified period were reviewed.

Results A total of 52 patients were diagnosed with pheochromocytoma. 19 were males and 3 were females with mean age of $45 \pm$ SD yrs old. Hypertension was the commonest presenting feature, present in 25 (48%) of patients. Classical triad was present in only 4 patients (7.6%). Sporadic cases accounted for 79% of the series while 21% were due to hereditary causes. Epinephrine and norepinephrine were the two most common catecholamines predominantly secreted, elevated in 68% and 66% of patients respectively. CT scan or MRI localized all pheochromocytomas. MIBG scan was confirmatory in 96 %. Twenty-eight (54%) pheochromocytomas were located on the right side, 15 (29%) on the left and 8 (15%) were bilateral. Thirty-two (63%) had open surgery and 17 (33%) had laparoscopic surgery. There was a significant positive correlation between tumor size and urinary normetanephrine level ($r=0.606$, $p=0.002$). Eighteen percent had malignant lesions. No significant difference was found between malignant and benign pheochromocytoma in terms of presentation, tumor size and catecholamine levels. Hereditary pheochromocytomas differed significantly from sporadic forms in the bilaterality and the diagnosis being made upon screening. During a median follow-up period of 52 months, 43 (83%) patients were alive and disease-free, 4 patients had recurrence at a mean follow-up time of 68 months, and 3 died at a mean time of 72 months after operation. However, hypertension persisted in 17 (33%) of patients.

Conclusion In this Chinese series, there was a deviation from the traditional 10% rule of pheochromocytoma. Instead we had a higher prevalence of malignant, bilateral and hereditary form of pheochromocytoma and a higher percentage was not associated with hypertension. Seventy-nine percent of the pheochromocytomas were sporadic while 21 % had hereditary causes. This may be at part attributed to a referral bias as Queen Mary Hospital, which contributed to the majority of cases, is an academic tertiary referral centre for medical and surgical endocrinology. Fifteen percent bilaterality was noted. There was an 8% recurrence rate and malignancy was found in 18%. Mortality was seen in 6%. Our data would support the importance of long term follow up of patients suffering from pheochromocytoma.

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INCIDENCE AND PROGRESSION OF DIABETIC RETINOPATHY IN HONG KONG CHINESE WITH TYPE 2 DIABETES MELLITUS

Dr. Tam Ho Kee, Vicki, Department of Medicine and Geriatrics, Caritas Medical Centre (November 2006 Endocrinology, Diabetes & Metabolism Exit Assessment Exercise)

Objective Diabetic retinopathy (DR) is the most frequent cause of blindness among adults. We conducted a cohort study to determine the incidence and progression of DR in the Chinese population with type 2 diabetes mellitus in a district hospital in Hong Kong and to identify the risk factors associated with the development and progression of DR over a 4-year period.

Methods A total of 413 type 2 diabetic patients of Chinese ethnicity, who were followed-up in the Diabetic Clinic of Caritas Medical Centre and had a diabetes mellitus complication screening done during 2001, were studied. They were followed regularly for a mean of 4.2 years, to study the development and the progression of DR. The final follow-up analysis included 354 subjects (85.7%). The incidence and progression of DR was determined from either retinal photographs or case records should they be under the care of ophthalmologists. The severity of DR was graded according to the modified Early Treatment Diabetic Retinopathy Staging (ETDRS). The relationship between clinical and metabolic variables and the development and progression of DR was assessed by univariate and multiple logistic regressions.

Results Of the 413 patients with baseline complication screening done in 2001, the prevalence of any forms of DR was 39.2%. At the 4-year follow-up examination, DR newly developed in 43 of the 212 subjects who were free of DR at baseline, giving a 4-year cumulative incidence of 20.3%. Using univariate analysis, male gender, low body mass index, high baseline and mean HbA1c were associated with the development of DR. In those with DR at baseline, progression of DR was seen in 42 of 121 subjects who had a 2-step or more increment in the ETDRS staging between baseline and follow-up examination, giving a 4-year cumulative progression of 34.7%. In the univariate analysis, history of smoking, chronic alcohol consumption, high systolic blood pressure, high fasting blood glucose, high baseline and mean HbA1c levels, presence of albuminuria or proteinuria were positively related to progression of DR. However, in multivariate analysis, only high baseline HbA1c remained as a significant predictor for development of DR while the presence of macroalbuminuria and high mean HbA1c predicted progression of DR. Regression of DR, as defined by a 2-step or more decrement in ETDRS staging between baseline and 4-year follow-up examination, occurred in 12 of 91 (13.2%) subjects. Low baseline HbA1c and the absence of albuminuria or proteinuria were associated with regression of DR.

Conclusion DR is a frequent microvascular complication in Hong Kong Chinese with type 2 diabetes mellitus and this supports the need for regular retinal screening. Our incidence of DR was similar but progression was higher than those reported in the Caucasians. Our findings suggest that more frequent retinal screening may be worthwhile to those with poor glycemic control or whom with macroalbuminuria. Good glycemic control is important to prevent development and progression of DR and can possibly lead to regression of DR.

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58 ACROMEGALIC PATIENTS IN PRINCE OF WALES HOSPITAL (SHATIN DISTRICT) FOR THE PAST 10 YEARS (1995 TO 2005)

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Background: Acromegaly is associated with significantly increase in both morbidity and mortality. Study found that acromegaly died from cardiovascular complications,

associated respiratory disease and malignancies, in decreasing order of frequency. Controlling GH levels to target and/or IGF-1 levels is associated with improvement in adverse clinical outcomes. However, local data was lacking.

Aim: To describe the presentations, clinical characteristics and their associated complications; to describe the modality of treatment; to look into factors and post treatment growth hormone level in relations to the mortality of acromegaly.

Patients and Methods: A retrospective review of **58** patients, with established diagnosis of acromegaly being followed up in Endocrine clinic of Prince of Wales Hospital from January 1995 to December 2005. The patient lists were searched through the Hospital Authority Clinical Management System. Statistical analysis was performed using SPSS® V. 9.0 for Windows™.

Results: There were **31** males, **27** females. All were Chinese. The mean age of presentations was **47** (range: 23-77). The commonest mode of presentations was diabetic complications (**14% n=8**). The mean duration of delay in diagnosis was **10.1** years (range: 1-37). **Fifty-two (90%)** were **pituitary acromegaly** (included one McCune-Albright syndrome). In remaining six patients, either no pituitary tumor was found or data was missing (one case was MEN-1). Typical acral enlargements were invariably noted in **every** biochemically confirmed acromegalic (except one with MEN-1). **Forty-five (87%)** were macroadenomas, **seven (13%)** were microadenomas. **Twenty-seven (47%)** were hypertensive; **twenty-one (36%)** patients were diabetics; **Nineteen (33%)** had confirmed obstructive sleep apnoea. Neoplastic condition happened in **thirteen (22%)** patients, with the most frequent occurrence as **colonic carcinoma (n=3)**. **Forty-two** patients received pituitary surgery; **thirty-two** patients received radiation therapy. Bromocriptine was the first line medication. **Twenty-five patients (43%)** could achieve growth hormone <2.5µg/L. **Twelve (21%)** patients died during the above period. Patients with **hypertensions** or **diabetes** were associated with higher mortality with p value of **0.02** and **0.01** respectively. Those received **pituitary surgery** or **radiotherapy** was associated with better survival, p values of **0.003** and **0.01** respectively.

Conclusions: **Diabetes mellitus** was the commonest mode of presentations in acromegaly. Achieving the target GH and IGF-1 with treatment was important in order to improve clinical outcomes. Associated complications should be tackled. **Good glycemic and blood pressure control** was mandatory in acromegalic patients. **Surgery** and **radiotherapy** were effective in decreasing **mortality**.

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RETROSPECTIVE REVIEW ON COMBINATION ANTI-VIRAL TREATMENT FOR CHRONIC HEPATITIS C VIRUS INFECTION IN A REGIONAL HOSPITAL

Dr. Chan Wai Hong, Department of Medicine & Geriatrics, United Christian Hospital (December 2006 Gastroenterology and Hepatology Exit Assessment Exercise)

Chronic hepatitis C virus infection is the important cause of chronic liver disease which may lead to devastating complications. Interferon plus ribavirin or pegylated interferon plus ribavirin are recommended therapies for chronic hepatitis C virus infection. The available data favour the use of the latter regimen, of which higher rates of sustained virological response has been consistently demonstrated.

Objectives To evaluate retrospectively the efficacy of combination anti-viral treatment in patients with chronic hepatitis C virus infection.

Methods Patients with chronic hepatitis C virus infection being treated at United Christian Hospital between January 2000 and December 2004 were identified, and their medical records were reviewed. The primary end point was the rate of sustained virological response, which was defined as undetectable hepatitis C virus RNA in serum at 24 weeks after end of treatment.

Results Thirty patients were being treated with anti-viral agents during the 5-year period. Eighteen patients received subcutaneous interferon alfa-2b (3 MU three times weekly) plus oral ribavirin 1000-1200 mg daily and 12 patients were given subcutaneous pegylated interferon alfa-2b (1.5 ug/kg weekly) plus ribavirin 1000-1200 mg daily. Patients who received the combination of pegylated interferon and ribavirin had a higher rate of sustained virological response than those who received interferon plus ribavirin (67% versus 22%, $p=0.03$). Patients infected with non-1 genotypes had higher rates of sustained virological response than those with genotype 1, irrespective of the treatment regimen. There were less adverse events, and less dose discontinuation or reduction among patients treated with the pegylated interferon combination.

Conclusions Combination treatment with pegylated interferon and ribavirin is more effective than interferon plus ribavirin in the treatment of chronic hepatitis C virus infection. In addition, the tolerability of pegylated interferon plus ribavirin is better.

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PSOAS ABSCESS: A RETROSPECTIVE ANALYSIS OF 78 PATIENTS DURING A 10-YEAR PERIOD IN 3 LOCAL HOSPITALS IN HONG KONG

Dr Li Wai Sum, Integrated Medical Service, Ruttonjee Hospital (December 2006 Infectious Disease Exit Assessment Exercise)

Psoas abscess is a relatively uncommon condition and early diagnosis may be difficult. **Objective** To review the characteristics of patient presentation, microbiology, diagnostic clues and treatment of psoas abscess.

Patients and Methods Retrospective review of patients' records with psoas abscess from three tertiary hospitals in Hong Kong in a ten-year period.

Results 78 patients (mean age 55.8, range 7 to 88 years) with psoas abscess were retrieved, male to female ratio of 2.3 to 1. Common presenting symptoms include pain (96.2%), fever more than 38°C (69.2%), and groin swelling (35.9%). Common organisms isolated were Methicillin-sensitive *Staphylococcus aureus* (MSSA) (37.1%), *Mycobacterium tuberculosis* (M.TB) (22.9%), *Streptococcus* species (11.4%) and *E.Coli* (7.1%). Intravenous drug user was more likely to have MSSA-related psoas abscess ($p<0.05$). Patient who had past history of pulmonary tuberculosis was more likely to associate with M.TB psoas abscess ($p<0.05$). Patients with MSSA-related psoas abscess presented acutely with significantly shorter duration of symptoms before hospitalization as compared to M.TB cases (mean 8.2 days vs 55.7 days, $p<0.001$), more on the right side ($p<0.05$), the peripheral leucocyte count and C-reactive protein were significantly higher ($p<0.001$ and $p<0.001$ respectively) and

higher mean ALP levels. Patients with M.TB-psoas abscesses were associated with prior history of pulmonary tuberculosis ($p<0.001$) and more likely to have skeletal effects ($p<0.001$) as compared with MSSA or psoas abscess caused by other pyogenic organisms. Significant longer mean interval between admissions to diagnosis was demonstrated in patients admitted to medical wards as compared orthopedics patients, (mean 17.2 days vs 6.1 days, $p<0.001$), prolonged interval from admission to diagnosis was significantly associated with mortality ($p<0.05$). All patients received appropriate antibiotics and most with drainage. One patient relapsed in one month. The overall mortality rate of psoas abscess was 9.0%, the mortality was slightly higher in patients with M.TB- (13%) and lower in patients with *Staphylococcus aureus*-related psoas abscess (4.2%) but not statistically significant.

Conclusions Psoas abscess in Hong Kong were often caused by M.TB and *Staphylococcus aureus*. M.TB-psoas abscess tend to have subacute onset, prolonged clinical course and higher rate of skeletal effects. Antibiotics and aggressive drainage offer good outcome. Patients in orthopedic wards had earliest imaging studies performed to ascertain radiological diagnosis. Clinicians need to aware this condition and risk factors for prompt diagnosis and treatment to improve clinical outcome and avoid complications.

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ANALYSIS OF FUNGAL PERITONITIS IN PERITONEAL DIALYSIS IN A LOCAL HOSPITAL OF HONG KONG

Dr. Tsang Kwong Yuen, Department of Medicine, Alice Ho Miu Ling Nethersole Hospital (December 2006 Nephrology Exit Assessment Exercise)

Peritoneal dialysis accounted for the majority of renal replacement therapy in Hong Kong. 51.5% of renal replacement therapy was peritoneal dialysis. Infection accounted for the majority of causes of death in the patients put on renal replacement therapy (30.4%). Among which, peritonitis in patients undergoing peritoneal dialysis accounted for a large proportion of poor morbidity and frequent hospitalization. Although uncommon, fungal peritonitis is one of the complications with poor outcome and high mortality rate. As a result, the prevention and effective treatment of fungal peritonitis will be important to improve the quality of life and to reduce the numbers of hospital admission in this group of patients.

Method We retrospectively reviewed all patients undergoing peritoneal dialysis with the diagnosis of fungal peritonitis from the Renal Registry in Alice Ho Miu Ling Nethersole Hospital during the period from July,1997 to July 2005. Firstly, we presented the demographics and clinical characteristics of the patients with fungal peritonitis in our hospital. We also analyzed the spectrum of the causative organism in our center. Finally we attempted to correlate the outcome of fungal peritonitis, namely technique failure rate and mortality rate, to the possible risk factor.

Result A total of 776 episodes of PD peritonitis were reported in the Renal Registry of Alice Ho Miu Ling Nethersole Hospital from 1st, July 1997 to 31st, July 2005 and 34 episodes of fungal peritonitis were analyzed. The peritonitis rate of fungal peritonitis among the patients undergone peritoneal dialysis in our center was one episode per 527.5 patient-months. Eighty-two percent of the episodes of fungal peritonitis were caused by *Candida* species, among which 31% were *Candida albicans* and 24 % were *Candida parapsilosis*. 6% PD peritonitis were due to *Trichosporon*. The figures showed that only seven episodes (20.6%) out of the

reported cases could resume peritoneal dialysis after resolution of peritonitis while twenty-three episodes (67.6%) had PD failure and were put on chronic haemodialysis. Four patients (11.8%) died of fungal peritonitis or its related complications finally.

The presence of causative organism of *Candida albicans* and the complication of intra-abdominal adhesion were associated with technique failure while the causative organism of *Trichosporon* were associated with higher mortality. Diabetes mellitus may be a risk factor of higher technique failure rate. On the other hand, causative organism of *Candida parapsilosis* was associated with lower technique failure rate.

Conclusion Fungal peritonitis in peritoneal dialysis seems to have higher technique failure and higher mortality rate despite of our current antifungal therapy. Studies to compare the efficacy of traditional antifungal agent especially amphotericin B and that of newer antifungal agent will be required to optimize our antifungal regime in the future. In addition, early antibiotic treatment and immediate peritoneal catheter removal after the diagnosis of fungal peritonitis in patient undergone peritoneal dialysis seem to improve the survival of the patients, which were well demonstrated in the previous studies. Since the presence of intra-abdominal adhesion was associated with significant technique failure in PD patient, the intervention that can minimize the intra-abdominal adhesion will decrease the number of patients put on chronic haemodialysis in the future. Furthermore, studies evaluated an effective preventive measure of fungal peritonitis in PD patients will be an important issue although it is not emphasized in our analysis.

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PERITUBULAR CAPILLARY C4D STAINING IN RENAL ALLOGRAFT BIOPSIES: LOCAL EXPERIENCE

Dr. Yuen Sze Kit, Department of Medicine and Geriatrics, Caritas Medical Centre (December 2006 Nephrology Exit Assessment Exercise)

Background Acute rejection constitutes a significant proportion of renal allograft loss. Peritubular capillary deposition of C4d has been recognized as the footprint of humoral alloimmunity and proven to be a sensitive and specific marker for humoral rejection in the appropriate clinical context. Its presence in indication biopsies is the most important independent risk factor for graft failure.

Objectives Plenty has been written in the literature about the significance of peritubular capillary C4d deposition in renal allograft biopsies. Local data among Chinese subjects, however, is lacking. The current study reviews the experience of a local transplantation centre on the use of C4d staining for renal graft biopsies.

Method All renal graft biopsies performed from 1st April 2002 to 31st March 2006 for unexplained acute renal dysfunction or delayed graft function were retrospectively reviewed. Patient demographics, background immunogenic risk, immunosuppression regime, conventional histopathological findings of renal biopsies, peritubular capillary C4d status and use of anti-rejection therapy were examined. Patients were followed up till patient's death, graft failure or 31st August 2006, whichever is earlier. Renal function was assessed at the time of renal biopsy and at 1 month, 3 month, 6 month and 1 year afterwards. Renal outcome assessment included death-censored allograft survival, doubling of serum creatinine and 50% reduction of glomerular filtration rate.

Results 52 biopsies were included, of which 16 were positive for peritubular capillary C4d. Peritubular capillary C4d was associated with lower glomerular filtration rate and higher serum creatinine at 6 and 12 months after renal biopsies. C4d positive group fare worse in terms of death-censored graft failure, doubling of serum creatinine and reaching 50% of glomerular filtration rate at the end of the study. Peritubular capillary C4d deposition was the only significant risk factor that predicts graft failure in multivariate analysis.

Conclusion Findings from this small study confirmed the independent prognostic value of peritubular capillary C4d staining on renal allograft survival.

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HEART RATE RECOVERY, MAXIMAL EXERCISE SYSTOLIC PRESSURE, PEAK RATE PRESSURE PRODUCT AND MORTALITY IN INDIVIDUALS WITH CORONARY HEART DISEASE AFTER CARDIAC REHABILITATION.

Dr Leung Man Ching, Department of Medicine and Rehabilitation, Tung Wah Eastern Hospital (December 2006 Rehabilitation Exit Assessment Exercise)

Objectives To evaluate the effectiveness of cardiac rehabilitation in terms of: 1) heart rate recovery response to symptom-limited treadmill exercise before and after cardiac rehabilitation, 2) changes in maximal exercise systolic pressure and peak rate pressure product before and after cardiac rehabilitation and 3) three year mortality compared with control.

Design A retrospective cohort study, involving 209 patients who had completed phase II ambulatory cardiac rehabilitation in Tung Wah Eastern Hospital (TWEH) cardiac rehabilitation unit since November 2001. Twenty-two subjects who refused ambulatory cardiac rehabilitation served as control group.

Results The study group showed significant decrease in resting heart rate from 70.37 ± 12.02 bpm to 65.07 ± 11.35 bpm ($p = 0.031$), increase in maximal heart rate 115.23 ± 18.4 bpm to 123.17 ± 19.7 bpm ($p = 0.023$), and increase in heart rate recovery from 10.9 ± 7.53 bpm to 13.53 ± 7.53 bpm ($p = 0.016$) before and after cardiac rehabilitation. There was also significant increase in peak exercise systolic blood pressure from 151.32 ± 23.22 mmHg to 161.65 ± 20.17 mmHg ($p = 0.000$) and peak rate pressure product from 183.14 ± 45.09 beats/min • mmHg to 198.05 ± 42.37 beats/min • mmHg ($p = 0.004$). However, there was no significant difference in all-cause mortality (18.5% in study group vs 22.7% in control group, log rank χ^2 test p value >0.5). The 3-year survival rate in subjects who had cardiac rehabilitation was 80.28%, and the rate in control group was 75.19%.

Conclusions Physiological improvements after ambulatory rehabilitation were observed in terms of resting heart rate, heart rate recovery, maximal exercise systolic blood pressure and peak rate pressure product. However, there was no significant reduction in all-cause mortality in 3-year follow up.

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