Abstracts of Dissertations
June 2002 Exit Assessment Exercise

URINARY TRACT INFECTION IN THE MEDICAL UNIT OF QUEEN MARY HOSPITAL

Dr Chan On On Annie, Department of Medicine, Queen Mary Hospital (June 2002 AIM Exit Assessment Exercise)

Urinary tract infections (UTI) are a serious health problem affecting a lot of people each year. It accounts for over 7 million office visits and US $1 billion in health care per year in the United States. The hospitalized UTIs are often complicated as the patients are predominantly elderly with a number of co-morbidities, resulting in increase risk of therapy failure. The uropathogen pattern and antibiotics sensitivity in Hong Kong has not been reported recently.

It was a retrospective study investigating the demographics, associated co-morbidities and microbial uropathogen pattern. Records from patients admitted to the medical unit of Queen Mary Hospital during the period from January 1999 to December 1999 with the diagnosis of urinary tract infection were reviewed and analyzed.

The total number of admissions during the period from January 1999 to December 1999 in the medical department of Queen Mary Hospital was 19070. There were 636 patients (706 admissions) diagnosed to have UTI in the year. The primary diagnosis of UTI was found in 532 admissions. Thus, UTI as the primary diagnosis accounted for 2.7% of all the admissions in the year 1999. The median age was 72 years, ranged from 17 to 104 years. Female patients were admitted twice as frequent as male patients in all age distribution. The most commonly found uropathogens were Escherichia coli (45%), enterococcus (9%) and Klebsiella (9%). The most commonly associated co-morbidities were diabetes mellitus (29%) and cerebrovascular disease (27%). The pattern of uropathogens differed from those reported in Hong Kong in 1987, with enterococcus becoming more prevalent than in 1987. The sensitivity of E. coli and Klebsiella to first generation of cephalosporin dropped from 97% and 87% in 1987 to 53% and 63% in 1999 respectively. Among the E. coli isolates in patients older than 60 years, 9% were extended-spectrum beta-lactamase (ESBL). The commonly used antibiotics were cefuroxime, amoxicillin-clavulanate and ciprofloxacin.

This dissertation provides information on the characterization of UTI in a regional hospital in Hong Kong. It describes the change in uropathogen pattern and antibiotics sensitivity in the recent 12 years, as well as the antibiotics prescribing behavior in Hong Kong.

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HEMORRHAGIC COMPLICATIONS IN CHINESE PATIENTS DURING ANTICOAGULANT THERAPY

Dr Chan Tak Yeung, Department of Medicine & Geriatrics, Kwong Wah Hospital (June 2002 AIM Exit Assessment Exercise)

Objective We aim to evaluate the incidence of major and minor bleeding complications among Chinese patients receiving long term anti-coagulants in community practice.

Methods A retrospective inception cohort study was undertaken in a regional hospital. Unselected patients who were initiated on warfarin for all indications from 1st January 1998 to 31st December 1998 were enrolled. Outpatient and selected inpatient medical charts were reviewed for demographic data, clinical characteristics and adequacy of anti-coagulation. Major and minor bleeding complications were documented during the period from January 1998 through June 2001.

Results A total of 131 patients were identified. The mean age was 67.8 (SD 11.9) years and 52.6% were women. The mean duration of follow up was 2.2 years (SD 1.1). Major indications for warfarin were: non-valvular atrial fibrillation (60%), venous thrombosis (17%) and rheumatic heart disease (16%). The subjects spent 50% of their total time within target international normalized ratio range. The average annual rates for major and minor bleeding events were 1.8% (95% confidence interval 0.6 to 4.1%) and 18.5% (95% confidence interval 13.9 to 24.2%) respectively. The cumulative incidence of first major and minor bleeding events at one, two and three years were 3%, 4%, 5% and 15%, 24% and 37% respectively. Intensity of anticoagulation was the only predictive factor identified to be associated with bleeding complications.

Conclusion Among Chinese patients receiving long-term warfarin, major hemorrhage occurred at an acceptable range in clinical practice, while considerable minor bleeding was observed. Utilization of oral anticoagulants in Chinese patients appears safe and should be advocated in appropriate indications.

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PATIENTS WITH TUBERCULOUS PERITONITIS HAVE A HIGH MORTALITY WHILE WAITING FOR THE RESULT OF MYCOBACTERIAL CULTURE OF ASCITIC FLUID

Dr Chow Kai Ming, Department of Medicine & Therapeutics, Prince of Wales Hospital (June 2002 AIM Exit Assessment Exercise)

Purpose The clinical outcome of patients with tuberculous peritonitis is unclear. We perform a single-centre study on the clinical features and outcome of tuberculous peritonitis.

Subjects and Methods Based upon the clinical database of Prince of Wales Hospital, all cases of tuberculous peritonitis between January 1989 and February 2002 were identified. Their presentation and clinical outcome were reviewed.

Results There were a total of 64 patients; 38 (59%) were males. The average age at presentation was 54 ± 19 years. Most of the patients had severe underlying medical conditions such as cirrhosis (23 cases), renal failure (19 cases), diabetes mellitus (16 cases), or malignancy (12 cases). Chest roentgenographic findings, ascitic fluid lymphocytosis, and exudative biochemistry were identified in 31%, 39%, and 65% of the cases respectively. In contrast, 11 patients had peritoneal biopsy and in all of them peritoneal biopsy provided early definitive diagnosis. Thirty-two patients died of tuberculous peritonitis, and 27 of them died within 6 weeks of their initial presentation; often before the result of mycobacterial culture of ascitic fluid was available. Only 10 patients died of advanced disease after anti-tuberculous therapy was started. Univariate analysis showed that advanced age, underlying diagnosis, and delayed initiation of therapy were associated with higher mortality.

Conclusion Standard anti-tuberculous chemotherapy is highly effective. However, conventional microbiologic diagnostic methods are slow and not sensitive enough for establishing a diagnosis of tuberculous peritonitis. Many patients died before a positive diagnostic test becomes available. We believe an aggressive diagnostic approach, particularly with peritoneal biopsy, is crucial for investigating patients with unexplained ascites.

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CLOSTRIDIUM DIFFICILE COLITIS – A LOCAL EXPERIENCE

Dr Chu Chun Kwok Angus, Department of Rehabilitation, Kowloon Hospital (June 2002 AIM Exit Assessment Exercise)

Background Toxin producing *Clostridium difficile* is the commonest causes of nosocomial diarrhoea and, as such, poses a major problem in hospitals. With the increasing use of antibiotic in daily practice, the problem and its associated clinical impacts are rising.

Objectives To describe the epidemiology, patients' characteristics, clinical pattern and prior antibiotic exposure and treatment of *clostridium difficile* colitis (CDC) in a local regional hospital.

Methods In a one-year period, 94 episodes of CDC were identified from the laboratory database and patients' discharge diagnostic code and a retrospective analysis of these episodes were performed.

Results Majority (73.4%) acquired the condition during hospitalization. The main population susceptible to this disease was elderly age ≥ 65 (79%). There was definite

history of antibiotics exposure in 84 episodes and the median time for the development of symptoms after antibiotic was 12 days. Cephalosporin, ß lactamase inhibitor containing antibiotics, amikacin and clarithromycin were the most frequent antibiotics that were exposed. When adjusted to the total consumption, cefoperazone/sulbactam, piperacillin/tazobactam, amikacin and meropenem became the 4 most important drugs that were associated with CDC. All except 6 episodes had diarrhoea. Metronidazole was the drug of choice for treatment in most of the episodes (65.9%). The response time to treatment between metronidazole (mean 7.5 days) and vancomycin (8.3 days) was not significantly different. However, the use of antispasmodic agent was significantly associated with longer duration of symptoms (P <0.05). 3 cases with compatible features of fulminant pseudomembranous colitis were described.

Conclusion CDC was still a diagnosis oft missed. It was associated with significant morbidity and probably mortality. The all cause mortality associated with this condition was high (30.9%) in the present study. Although it was not the direct cause of death, its contribution to the negative outcome should not be underestimated. Measures like antibiotics optimization programme may help to prevent this condition.

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ANALYSIS OF NEUROLOGICAL SEQUELAE AFTER ACUTE CARBON MONOXIDE POISONING

Dr Fan Hon Cheung, Department of Respiratory Medicine, Ruttonjee Hospital (June 2002 AIM Exit Assessment Exercise)

The incidence of acute carbon monoxide (CO) poisoning is increasing in Hong Kong. Prompt management can reduce residual neurological damage. Patients who were admitted to Ruttonjee Hospital for acute CO poisoning from October 1997 to August 2001 were reviewed retrospectively. There were twenty-five patients with a mean age of 33.6. The sources of poisoning were fire victims in thirteen (52%), suicide in ten (40%) and other causes in two (8%) patients. Five (20%) had pre-existing depression. Ten (40%) were comatose. All had received 100% oxygen mask in the Emergency department. Initial laboratory examination demonstrated a mean ± SD carboxyhemoglobin (COHb) level of 11.6% ± 8.7, pH of 7.34 ± 0.10 and HCO_3 of 20.0 mmol/L ± 6.2. Immediate complications included metabolic acidosis (14 or 56%), ECG changes (12 or 48%), rhadomyolysis (6 or 24%) and CXR changes (5 or 20%). Eleven (44%) patients were mechanical ventilated. Three (12%), who were unconscious, received hyperbaric oxygen therapy. Two (8%) who had pre-hospital cardiac arrest were died. Of the 23 survivors, four (17%) developed neurological sequelae at 1 to 3 months after discharge. Neurological sequelae was significantly associated with initial low Glascow Coma Scale (GCS < 8, p = 0.006; sensitivity 100%; specificity 71%) and low HCO_3 (HCO_3 < 22, p = 0.015; sensitivity 100%; specificity 63%). In conclusion, patients with pre-hospital cardiac arrest were associated with high mortality. Low Glascow Coma Scale (< 8) and HCO3 (< 22) predicted the presence of neurological sequelae.

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DRUG OVERDOSE AND OTHER POISONING IN A TERTIARY HOSPITAL IN HONG KONG

Dr Ko Wai San Fanny, Department of Medicine & Therapeutics, Prince of Wales Hospital (June 2002 AIM Exit Assessment Exercise)

Drug overdose and poisoning is an important medical problem in Hong Kong. In 1990, over 6500 patients were treated in public hospitals in Hong Kong due to acute poisoning and there were 245 deaths as the result. The aim of this project is to assess the scope of the problem in a teaching hospital in Hong Kong over the past one year. In the Prince of Wales Hospital, all hospitalizations and mortality were given International Classification of Diseases (ICD) codes, which were entered into the Hospital Authority database. In year 2000, there were 118 admissions to the Prince of Wales Hospital due to medicinal (ICD-9-CM codes 960-977) or non-medicinal (ICD-9-CM codes 980-989) poisoning according to the Hospital Authority database. Their case records were retrieved retrospectively for this study.

One hundred and eleven records were successfully retrieved for analysis. The mean age of subjects was 41 (SD ± 21) years, with 44 males and 66 females. The majority of these cases (87%) were single agent poisoning. Thirty-four patients were admitted because of unintentional overdose and the commonest agent used among this group was warfarin (85%). Seventy-six patients had poisoning due to deliberate self-harm and among this group, paracetamol (41%) and sleeping medicines (29%) were the commonest agents used. Two patients required admission to the intensive care unit and two others required admission to the coronary care unit. There was no mortality noted in this cohort and the mean length of hospital stay was 3.8 (SD ± 3.8) days.
Drug overdoses and poisoning is an important medical problem. Physicians must familiarize themselves with the general and specific management of common poisonings. The general management of poisoning is discussed in this dissertation. As paracetamol was the commonest agent used for deliberate self-harm, its specific management with the use of N-acetylcysteine is also discussed in details.

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EFFECT OF PREEXISTING COAGULOPATHY ON OUTCOME OF SPONTANEOUS INTRACEREBRAL HAEMORRHAGE

Dr. Lam Wai Kei, Department of Medicine, North District Hospital (June 2002 AIM Exit Assessment Exercise)

Objectives and methods The potential increase in risk of intracerebral haemorrhage after aspirin or anticoagulation is well appreciated. However whether they affect the outcome of cerebral haemorrhage once the haemorrhage has occurred is less commonly documented. This study retrospectively examined cases of spontaneous intracerebral

haemorrhage in a local regional hospital. Patients were divided into control group, aspirin-users, warfarin-users and patients who had coagulopathy or thrombocytopenia. Pattern of haemorrhage and volume of haematoma were compared among the groups. Glasgow Outcome Scale and predictors of 30-days survival were secondary outcomes.

Results There were no significant differences in mean haematoma volume and haematoma location among the groups. On univariate analysis a larger haematoma volume can be predicted by presence of fever in first 48 hours, a lower Glasgow Coma Scale, higher serum glucose, and higher peak systolic and diastolic blood pressure in first 24 hours of admission. Only the peak but not the mean arterial pressures were predictive of haematoma volume. Functional outcome on hospital discharge was poorer if patients were on aspirin or warfarin, or had any coagulopathy on admission. Fever in first 2 days of admission, on aspirin or warfarin, presence of any coagulopathy or thrombocytopenia, supratentorial location of bleeding, presence of intraventricular blood, greater volume of parenchymal or ventricular haemorrhage, presence of mid-line shift, higher creatinine and higher glucose level on admission were predictive of poorer 30-days survival.

Conclusion In patients with spontaneous intracerebral haemorrhage, pre-existing iatrogenic or naturally occurring coagulopathy did not affect haematoma volume, but were associated with a poorer functional outcome and 30-days survival.

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EFFECT OF PREEXISTING COAGULOPATHY ON OUTCOME OF SPONTANEOUS INTRACEREBRAL HAEMORRHAGE

Dr Lam Wai Man, Pulmonary and Palliative care Unit, Haven of Hope Hospital (June 2002 AIM Exit Assessment Exercise)

A retrospective analysis of 102 patients with cardiopulmonary exercise testing (CPEXT) done was performed in order to assess the clinical utility of CPEXT in the assessment and management of patients with pulmonary diseases (72 patients, including 39 with Chronic Obstructive Pulmonary Disease, 20 with Pneumoconiosis and 13 with Interstitial Lung Disease), cardiac diseases (20 patients including 10 patients post-recent myocardial infarction and 10 with congestive heart failure) and renal disease(10 patients with chronic renal failure undergoing CAPD), who commonly presented with dyspnea on exertion and exercise limitation. CPEXT is found to be helpful in the following aspects: first, it differentiates among the various pathophysiological mechanisms causing the symptoms, which can be categorized into ventilation limitation, cardiac limitation, pulmonary vascular limitation, cardiovascular deconditioning, peripheral muscular deconditioning, poor effort, anemia and metabolic limitation; second, it provides a rational basis for management of individual patient, especially when a combination of factors coexists; and third, it provides essential information for the proper selection and exercise prescription of patients undergoing exercise training and rehabilitation. Discrepancies between clinical assessment and CPEXT assessment of the cause of exercise limitation are found and clinical parameters are not always predictive of actual exercise capacity. No

significant correlation can be demonstrated between VO2max and FEV1 in COPD, between left ventricular ejection fraction and VO2max in cardiac diseases, and between Haemoglobin level and VO2max in renal failure. No significant improvement occurred in the various CPEXT parameters after pulmonary rehabilitation in this sample.

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CLINICAL FEATURES AND MANAGEMENT OF PERITONITIS IN PATIENTS WITH END-STAGE RENAL FAILURE ON CONTINUOUS AMBULATORY PERITONEAL DIALYSIS IN QUEEN MARY HOSPITAL

Dr Lam Yui Ming, Department of Medicine, Queen Mary Hospital (June 2002 AIM Exit Assessment Exercise)

Continuous ambulatory peritoneal dialysis (CAPD) is the commonest renal replacement therapy used in Hong Kong. There are about two hundred patients on CAPD with regular follow up in Queen Mary Hospital. Peritonitis is a major complication giving rise to morbidity and even mortality among these patients. This retrospective study is planned to review the bacteriology, the associated risk factors for the development of peritonitis, the response to antibiotic treatment, the rate of Tenckhoff catheter removal, and the factors associated with different clinical outcome in CAPD patients who developed peritonitis in the past one year from 1st July 2000 to 30th June 2001. *Results:* There were 226 patients on regular CAPD follow up in Queen Mary Hospital within the study period. Total 87 episodes of peritonitis were noted in 51 patients. The average incidence was 1 episode/28.6 patient-month. The age of these patients is significantly higher than those patients (mean age 55.9 +/- 14.3, $p<0.05$) who do not have episode of peritonitis within this period. A higher percentage of conventional straight-line connecting system was found in the group of patients with peritonitis when compared with the group of patients without peritonitis ($p<0.02$). About 80% of the cases were successfully treated with intraperitoneal antibiotics with resolution of the peritonitis. Removals of Tenckhoff catheter were required in 18 patients and 3 of them died. Staphylococcus was the most common causative agent in CAPD peritonitis but there were a significant number of patients had negative cultures in their peritoneal dialysis fluid.

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CLINICAL AUDIT ON ANTITHROMBOTIC TREATMENT OF ATRIAL FIBRILLATION IN A REGIONAL HOSPITAL IN HONG KONG

Dr Leung Cheuk Sum, Department of Medicine, Yan Chai Hospital (June 2002 AIM Exit Assessment Exercise)

Background Very few data are available about the prevalence and safety of antithrombotic use in Asian or Chinese patients with atrial fibrillation.

Objectives To measure the prevalence, appropriateness and safety of antithrombotic use in Hong Kong Chinese atrial fibrillation patients. To assess the effect of an education program on pattern of antithrombotic use.

Methods Medical records of patients admitted to acute medical wards with atrial fibrillation were reviewed retrospectively.

Results 207 patients had chronic atrial fibrillation. After excluding patients with contraindication to warfarin, 58.2% of nonvalvular AF patients were receiving warfarin. Of the remaining patients, 93.5% were taking aspirin. 68.1% of patients were following the American College of Chest Physicians (ACCP) guidelines. After a series of education program on stroke prevention in atrial fibrillation, there were more patients receiving warfarin ($p<0.0005$) and any antithrombotics ($p<0.0005$). Also more appropriate treatment was prescribed after the education program ($p<0.0005$). The major side effect rate of warfarin and aspirin were 2.8% and 1.72% per patient year, which were comparable with major antithrombotic studies. Time in therapeutic range of INR was comparable with major antithrombotic studies as well as the randomized control trials, though the interval of INR test was longer than most guidelines and studies (45.6 days).

Conclusion This study found that the use of antithrombotic in Hong Kong was similar to Western institutions. The safety of antithrombotics was also similar to Western data. This education program was useful to increase the awareness and appropriate use of antithrombotic therapy in atrial fibrillation patients.

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PARACETAMOL POISONING AND HEPATOTOXICITY
A REGIONAL HOSPITAL EXPERIENCE & REVIEW OF THE MANAGEMENT

Dr Leung Tat Chi Godwin, Department of Medicine, Pamela Youde Nethersole Eastern Hospital (June 2002 AIM Exit Assessment Exercise)

Paracetamol poisoning remains a significant health problem in our locality, and the incidence is increasing compared to the past. From Jan 2000 to Dec 2001, there were 691 admissions to the medical wards of the Pamela Youde Nethersole Eastern Hospital as a result of drug overdose. Paracetamol was the second largest class of drug used in self-poisoning accounting for 25% of all self-poisoning cases. A total of 128 patients with paracetamol poisoning were identified in our study. The average annual rate of admission due to paracetamol poisoning was 10.7 per 100,000 population. Paracetamol overdose continues to result in significant liver damage despite effective antidotes and standard treatment protocols. Fourteen patients (10.9%) developed paracetamol-induced hepatotoxicity as evidenced by an elevation in serum alanine transaminase (ALT), and this was severe in 5 (3.9%) patients (ALT greater than 1000 IU/L). Late presentation and delay in the treatment with intravenous N-acetylcysteine (NAC) were the main contributing factors for developing hepatotoxicity in our study. Although all patients with hepatotoxicity received intravenous NAC, it was inappropriately discontinued in 2

patients prematurely because of minor adverse reactions. Adverse reactions to intravenous NAC were common in our population, but serious side effects were rare. In our study, 27 patients (20.1%) developed adverse reactions. All of them developed transient urticarial rash. Four of these patients also developed shortness of breath. One of them developed 2 minutes of generalized tonic clonic convulsion. All patients with paracetamol poisoning recovered completely on conservative and supportive treatment.

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EXPERIENCE IN MANAGING PATIENTS WITH INFECTIVE ENDOCARDITIS IN A DISTRICT HOSPITAL

Dr. Li Ho Lun, Terrance, Department of Medicine & Geriatrics, Princess Margaret Hospital (June 2002 AIM Exit Assessment Exercise)

Objective To study the clinical spectrum of infective endocarditis patients admitted to a regional hospital

Design Retrospective study

Method Patients with infective endocarditis by Duke's criteria from January 1996 to December 2000 were recruited

Result 67 admission episodes were recruited. The mean age of diagnosis was 45.3 with male to female ratio of 3 : 1. Intravenous drug abuse was the most common predisposing condition (39.7% of cases). Transthoracic echocardiogram and transoesophageal echocardiogram has a sensitivity of 61.4% and 77.8% in detecting abnormalities respectively. The most common valve involved is mitral valve (41.4%). 15.5% cases had multi-valvular involvement. The commonest causative microorganism was Staphylococcus aureus (38.1%). 80% of them were Penicillin resistant. 20.6% of cases were complicated with congestive heart failure. 19% of cases had neurological complications. The 3-months' mortality was 14.3%.

Conclusion Infective endocarditis was commonly associated with intravenous drug abuse in our locality. Staphylococcus aureus was the commonest causative microorganism. Most of them were Penicillin resistant (80% of cases).

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PREVENTION OF CONTRAST MEDIA NEPHROPATHY

Dr Li Tat Wing Francis, Department of Medicine, Pamela Youde Nethersole Eastern Hospital (June 2002 AIM Exit Assessment Exercise)

Contrast media nephropathy (CMN) is a common complication occurring especially in patients with pre-existing renal insufficiency. Prevention of CMN can minimize patients'

morbidity as well as lessen the overall health care financial burden. Recently administration of oral N-acetylcysteine (NAC) prior to contrast media use has been shown to be effective in the prevention of CMN by a German study.
In order to evaluate the efficacy of oral NAC in our local population, a pilot study of 33 consecutive patients with pre-existing renal insufficiency with serum creatinine > 116μmol/L{1.3mg/dL} who received oral NAC as well as intravenous fluid prior to percutaneous transluminal coronary angioplasty (PTCA) was described in the first part of my dissertation. The resultant impact on renal function was compared with that of a control group of 42 patients who received intravenous fluid alone before PTCA. The incidence rates of CMN (defined by elevation of serum creatinine at 48 hours > 44μmol/L{0.5mg/dL} or 25% from baseline level) of the two groups were evaluated. Three out of 33 (9.1%) patients in the NAC group and two out of 42 (4.8%) patients in the control group had CMN respectively (p=0.39). Lack of effect of NAC could be partly related to the small study sample size and the higher baseline renal function in the NAC group compared with that of the control group (serum creatinine 164μmol/L vs 132μmol/L, p=0.001). Better-designed randomized controlled trial with sufficient sample size is warranted to evaluate the efficacy of NAC, an easily administered and relatively cheap and safe agent, for the prevention or minimization of CMN.
A critical literature review of the pathogenesis, risk factors and various measures for prevention of CMN were discussed in the second part of my dissertation. Pre-existing renal insufficiency, dehydration, diabetes mellitus, hyperosmolar contrast media (HOCM), and administration of large volume of contrast media are important risk factors for CMN. Adequate hydration remains an universally accepted measure. None of the multitude of pharmacological agents studied so far has been shown conclusively to be effective in the prevention of CMN. Oral N-acetylcysteine emerges as a new form of treatment in this aspect and warrants further clinical evaluation.

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THE ROLE OF AMBULATORY BLOOD PRESSURE MONITORING IN CLINICAL PRACTICE

Dr Ng Chiu Ming, Jason, Department of Medicine, Queen Elizabeth Hospital (June 2002 AIM Exit Assessment Exercise)

Hypertension is one of the commonest chronic diseases in medicine, and can lead to complications such as hypertensive heart disease, cerebrovascular accident, renal disease and a myriad of other complications. The cost of missing the diagnosis is high, since multiple studies have shown that these complications of hypertension can be prevented by treatment of hypertension (1,2), and many effective drugs are available. On the other hand, misdiagnosis of hypertension can condemn a patient to taking life-long medication unnecessarily, and anti-hypertensive drugs are not without side effects. It is therefore important to measure blood pressure accurately.
Unfortunately, proper measurement of blood pressure is fraught with difficulties (3): multiple factors may affect the blood pressure of a normal individual, calibrations of various machines can be a problem, and the definition of hypertension is by itself

controversial. As a single random blood sugar measurement can only give us limited information about the state of glucose tolerance of a person, a single random blood pressure measurement, especially when taken in a clinic setting, may not be the best way of diagnosing hypertension or assessing the adequacy of its treatment. As blood pressure is a continuous variable with diurnal fluctuations, many clinicians have wondered if it may be more logical to diagnose hypertension and monitor its treatment with 24-hour ambulatory blood pressure measurement, in the same vein as we measure 24 hour urine protein or free cortisol.

In this dissertation, I would like to review the literature on 24-hour ambulatory blood pressure monitoring and describe two of my preliminary studies in this area.

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A STUDY OF ACUTE MENINGITIS OF ADULTS IN A REGIONAL HOSPITAL (QEH) OF HONG KONG

Dr Ng Yee Wah, Department of Rehabilitation, Kowloon Hospital (June 2002 AIM Exit Assessment Exercise)

Background Different meningitis pattern is expected in Hong Kong due to our specific epidemiological characteristic and increasing trend of HIV infection. Knowledge of this pattern is relevant to our strategy of evaluating and treatment of patients with clinical features suggestive of meningits. *Objective* To study the pattern of involvement of various types of meningitis and clinical manifestation of various types of meningitis including the predisposing conditions and diagnostic features and to formulate approach in cases with clinically suspect meningitis. *Method* A retrospective review of patients with principal diagnosis of meningitis. Patients admitted from 01/04/98 to 31/03/01 were recruited. Clinical presentation, CSF features and outcome were analysed. *Result* 73 patients had clinical meningitis with 35 cases were confirmed with positive culture or molecular diagnosis. 4 cases had positive HIV status. 5 cases had history of nasophargneal carcinoma. Gram-negative bacilli cause a considerable portion of bacterial meningitis. Significant predisposing conditions are present in all these cases. 7 cases were confirmed to have tuberculous meningits (TBM) and 10 more cases were suspected to have TBM on clincial ground. 2 cases of TBM were diagnosed by PCR. 3 patients had hydrocephalus complicated on presentation. 10 cases of cryptococcal meningits were confirmed and 80% of patients had predisposing condition. 4 cases had HIV infection. 3 cases of herpes simplex viral meningitis were identified. No viral isolation were established. *Conclusion* This study gives a crude pattern of meningitis caused by various types of organism. We have different pattern of bacterial meningitis. Half of the clinical meningitis could not be confirmed. Clinical judgement is essential. Presence of history of nasopharyngeal carcinoma should merit attention to development of meningitis. Molecular diagnosis is helpful especially for diagnosis of TBM.HIV infection has led to increase of cryptococcal meningitis.

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CLINICAL FEATURES, LABORATORY FINDINGS AND OUTCOME OF CRYPTOCOCCAL MENINGITIS IN HIV-NEGATIVE AND HIV-POSITIVE PATIENTS

Dr O Wing Hing, Department of Medicine, Queen Elizabeth Hospital (June 2002 AIM Exit Assessment Exercise)

Diseases due to Cryptococcus neoformans occur in both immuno-competent and immuno-compromised patients.

This is a retrospective study to compare the clinical features, laboratory findings and outcome of cryptococcal meningitis between human immunodeficiency virus (HIV)-negative and HIV-positive patients. The records of 28 patients with cryptococcal meningitis were reviewed.

HIV-negative patient usually presented late in the course of the disease. The median duration between onset of symptoms and diagnosis was 30 days and was significantly longer than that of HIV-positive patients (14 days). For HIV-negative patients, 47% of cryptococcal meningitis occurred in healthy individuals. The mean cerebrospinal fluid (CSF) pressure was higher in HIV-negative patients ($31 cmH_2O$), and signs suggestive of raised intracranial pressure such as papilloedema were detected more frequently (53%). HIV-negative patients had a higher risk for undergoing ventriculoperitoneal shunting (40% of patients, relative risk = 2.4, 95% confidence interval was 1.5 to 4.0, p=0.02).

For HIV-positive patients, disseminated disease was more common at the time of presentation, as indicated by higher percentage of cryptococcemia (47%). Cryptococcal meningitis was the AIDS-defining illness in 46% of HIV-positive patients. Strong male predominance was observed in HIV-positive patients. The relatively lower CSF total protein and white blood cell counts might reflect lower inflammatory response in the brain, however, these did not reach statistical significance. The relapse rate was high in HIV-positive patients (45%). The first year mortality rate was 31% and the median survival was 17 weeks.

In conclusion, HIV-negative patients with cryptococcal meningitis had higher CSF pressure and hence possibly more neurological sequelae while HIV-positive patients had higher relapse rates and higher mortality rates.

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STROKE IN YOUNG ADULTS—THE PRINCESS MARGARET HOSPITAL EXPERIENCE

Dr Sheng Bun, Department of Medicine & Geriatrics, Princess Margaret Hospital (June 2002 AIM Exit Assessment Exercise)

Background Stroke is a devastating disease that causes heavy impact on the individual as well as the community. Its occurrence in young adults is not uncommon, but available local information regarding young stroke is scarce. This study reported the experiences from Princess Margaret Hospital on young stroke patients aged 18 to 45.

Methods This was a retrospective study based on patient hospital record analysis. Patients aged 18 to 45 who had been admitted to Princess Margaret Hospital from 1/1/1999 to 30/6/2001 with a principle discharge diagnosis of stroke, cerebrovascular accident, cerebral thrombosis, cerebral embolism, subarachnoid haemorrhage (SAH) or intracerebral haemorrhage (ICH) were identified from the hospital computer record database. Hospital records were retrieved and the relevant information abstracted. Attentions were paid particularly to the distribution of different types of stroke, etiologies, risk factors and late outcomes at a median follow up of 24 months after stroke.

Results Stroke in young adults accounted for 3.5% of all strokes being admitted during the study period. Seventy-five patients were identified with a mean age of 37.4(SD 7.4) and male to female ratio of 1.5 to 1. The distribution of SAH, ICH and ischaemic strokes were 14.7%, 40% and 45.3% respectively. The in-hospital mortality was 12% and the combined death and dependency rate was 22.7%. Outcomes were better in ischaemic stroke than SAH or ICH (p=0.001). Fifty-nine percent of patients who were independent in self-care returned working after stroke.

Conclusion Stroke in young adults is quite different from all age strokes in terms of stroke types and prognosis. After treatment, many stroke patients could reengage in working and enjoy a productive and fulfilling life.

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EARLY READMISSION OF PATIENTS WITH CONGESTIVE HEART FAILURE A RETROSPECTIVE STUDY IN A REGIONAL HOSPITAL IN HONG KONG

Dr Tai Kian Bun, Department of Medicine, Alice Ho Miu Ling Nethersole Hospital (June 2002 AIM Exit Assessment Exercise)

Background Readmission is common among patient with congestive heart failure. Intensive multi-disciplinary management may decrease readmission rate. However due to the limited resource it would be more feasible to select out the patient with high risk for intervening.

Objectives The purpose of this study was to identify the risk factors associated with early readmission of patient with congestive heart failure.

Subjects Ninety-sixth patients suffered from congestive heart failure with admission to Alice Ho Miu Ling Nethersole hospital were recruited for the study

Methodology This was a restrospective cohort study

Results Three factors were found to be associated with risk of early readmission within 30 days for patient with congestive heart failure. They were the presence of atrial fibrillation, a history of past admission with one year and living in elderly home.

Conclusion Three easily identified patient's characteristics were found to be associated with risk of early readmission. This will assist in risk stratification and allocation of intensive intervention program.

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THE EXTENDED SPECTRUM B-LACTAMASE (ESBL) PRODUCING ESCHERICHIA COLI AND KLEBSIELLA SPECIES: THE EMERGING PROBLEM IN HOSPITAL PRACTICE

Dr Tam Chi Ming, Department of Medicine & Geriatrics, Kwong Wah Hospital (June 2002 AIM Exit Assessment Exercise)

Since the first reported case of extended-spectrum β-lactamse (ESBL)producing *Klebsiella species* in Germany in 1983, the ESBL producing *Enterobacteriaceaes* have been emerging as a growing problem in hospital infection. Worldwide more than 50 outbreaks have been reported and caused lot of morbidity and mortality. We conducted a survey to study the patients' demographic data, risk factor and treatment outcome of patients with documented ESBL septicaemia in the Department of Medicine and Geriatrics of the Kwong Wah hospital from 4/1999 till 4/2001. Most of our studied patients were old (mean age 81.7 years) with multiple medical illnesses. Most of them have been hospitalized for more than 2 weeks (mean 17.5 days) with exposure to multiple antibiotics (> 40% had > 2 antibiotic exposure within 4 weeks). The mortality of ESBL septicaemia was high (34%). Carbapenem was the only antibiotic found to have survival benefit (odd ratio 3.5, p=0.011) whilst empirical treatment with cephalosporins for undiagnosed ESBL septicaemia was associated with poorer chance of survival and discharge (odd ratio 0.069, p= 0.003).

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SYSTEMIC AL-AMYLOIDOSIS IN TWO REGIONAL HOSPITALS

Dr Tam Kui Fu, Department of Medicine, Queen Elizabeth Hospital (June 2002 AIM Exit Assessment Exercise)

Objective To describe the clinical profile of systemic AL-amyloidosis in our local population

Method Retrospective analysis of all patients with biopsy proven AL-amyloidosis managed in both Queen Elizabeth Hospital and Kwong Wah Hospital, between January 1996 and October 2001.

Results Systemic AL-amyloidosis is an uncommon disorder in our locality. Only 25 documented cases were identified during five years period (1996-2001) in two regional hospitals. It carried high mortality with median survival of only 17 months from first symptoms presentation. Symptoms of heart failure were associated with even worse prognosis with median survival of seven months from clinical onset of heart failure. Clinical presentations of our patients were similar to those reported in medical literature, except we have more renal involvement. Heavy proteinuria and/or renal impairment were most common. They were the initial presentation in half of the patient and in 68% of all throughout the whole course of illness. Delay in diagnosis could be contributed by low threshold of awareness and delay presentation of patients. Biopsy confirmation and immunofixation of serum and urine are important in establishing diagnosis of AL amyloidosis. Abdominal fat aspirate is sensitive and less invasive than specific organ biopsy. Treatment of AL-amyloidosis remains very unsatisfactory. Oral melphalan and prednisolone should be tried, while high-dose chemotherapy with peripheral blood stem cell transplant is reserved to those who are fit enough to tolerate.

Conclusion AL-amyloidosis is a rare condition. Renal involvement appears to be more common in our population than Caucasian. High index of suspicion remains the key in early diagnosis of this multisystem disorder. In the absence of effective therapy, the overall prognosis remains very poor.

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COMPLICATIONS AFTER ACUTE ISCHAEMIC STROKE

Dr. Tsang Chi Chung, Department of Medicine, North District Hospital (June 2002 AIM Exit Assessment Exercise)

Objective The aims of this study were to evaluate the frequencies and the types of medical and neurological complications occurring in the hospitalized patients after acute ischaemic stroke and to identify the clinical factors associated with such complications.

Setting North District Hospital, Fanling, the New Territories, and Hong Kong

Subjects and Methods Data of a total of 284 patients who were consecutively admitted to North District Hospital for acute ischaemic cerebrovascular accident in the year 2001 was analyzed retrospectively. Demographic information, preexisting medical condition, admission laboratory abnormalities and admission neurological status were recorded. Medical and neurological complications occurring during the acute in-patient care were recorded. Multiple logistic regression analysis was used to determine the predictor factors that were associated with risk of medical and neurological complications as well as risk of mortality.

Results Among 284 patients, 96 of them (33.4%) experienced at least one medical or neurological complication during their in-patient care after acute ischaemic stroke. Twenty-six patients (9.2%) died after they were admitted for acute stroke. The most common medical complication was infection (26%) in which majority of them was either pneumonia (41 out of 284 patients) or urinary tract infection (33 out of 284 patients). Concerning the neurological complications, 21 patients (7.4%) experienced new infarct, cerebral edema, haemorrhagic transformation or seizure. Significant factors associated with the development of any complication included advanced age (odds ratio [OR], 1.046; 95%Confidence interval [CI], 1.006 to 1.087), longer duration of hospital stay (OR, 1.055; 95% CI, 1.025 to 1.085), impaired consciousness (OR, 3.792; 95% CI, 1.349 to 10.660), severe motor deficit (OR, 2.746; 95% CI, 1.155 to 6.524) and elevated white blood cells count (OR, 1.185; 95% CI, 1.002 to 1.403). Advanced age (OR, 1.054; 95% CI, 1.012 to 1.097), presence of pre-existing illness (OR, 6.078; 95% CI, 1.315 to 28.091), longer duration of hospital stay (OR, 1.046; 95% CI, 1.018 to 1.075), impaired consciousness (OR, 3.002; 96% CI, 1.056 to 8.537) and severe motor deficit (OR, 3.435; 95% CI, 1.42 to 8.31) were found to be related to the occurrence of medical complication. Tachycardia (OR, 1.052; 95% CI, 1.014 to 1.091) and massive infarct (OR, 3.593; 95% CI, 1.079 to 11.967) were associated with the occurrence of neurological complication. Finally impaired consciousness (OR, 18.333; 95% CI, 3.059 to 109.865) was associated with mortality.

Conclusions Complications are not uncommon among Chinese patients admitted for acute ischaemic stroke. Identification of risk factors may prognosticate the occurrence of the complications. It is essential to have risk stratification for all the stroke patients.

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A SIX-YEAR REVIEW OF CLINICAL MANIFESTATION, ETIOLOGY, DIAGNOSIS AND MANAGEMENT OF ACUTE MYOCARDITIS IN A REGIONAL HOSPITAL IN HONG KONG

Dr Tsang Tak Yin Owen, Department of Medicine & Geriatrics, Princess Margaret Hospital (June 2002 AIM Exit Assessment Exercise)

Myocarditis is a poorly understood disease because of its difficulties in diagnosis and management. A retrospective analysis is undertaken to review the clinical manifestation, etiology, diagnosis and management of this disease in a regional hospital in Hong Kong. Medical records of patients with a diagnosis of acute myocarditis in the Princess Margaret Hospital during the period from January 1997 to January 2002 were retrieved. Their case notes were reviewed. Data regarding the above parameters were recorded. Statistical analysis was undertaken with mortality and hospital stay as outcome variables. Eleven patients were finally identified. Eight was male and 3 were female with overall mean age 47.5 years old. The most common clinical features included chest pain (54.5 %), shortness of breath (54.5 %), vomiting (45.5 percent), cold sweating (45.5%), dizziness (36.4 percent), fever (63.6%) and loss of consciousness (18.2%). Over half of

these patients (54.5%) were also presented with frank heart failure but only 1 patient (9.1%) had clinical detectable murmur. Chest x-ray (CXR) showed cardiomegaly in 7 patients (63.6%) and half of the patients showed congested lung field. Sinus tachycardia was the commonest findings on electrocardiogram (ECG) in the studied sample (45.5%). Significant ST segment changes in ECG were detected in 3 patients with 2 of them showing ST segment elevation and 1 of them showing ST segment depression. T wave inversion was seen in 6 patients (54.5%). Q wave was identified in 2 patients. Ventricular arrhythmia was noticed in 2 patients. Echocardiographic evidence of global left ventricular dysfunction was identified in 7 patients (70%). The mean ejection fraction calculated from echocardiography was 39.8%. Endomyocardial biopsy was performed in 1 patient and post-mortem examination was done in another. All except one of the eleven patients had elevation of creatinine kinase. Five out of the 8 patients (62.5%) also had elevation of the MB fraction of creatinine kinase (CK-MB). Most patients were treated with standard protocol for heart failure. Artificial ventilation after admission for hospitalized patients with acute myocarditis was associated with increased mortality. Age greater than 55 years old, use of angiotensin converting enzyme inhibitor (ACEI) and the absence of signs and symptoms of upper respiratory tract infection were associated with longer hospital stay.

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PRIMARY PREVENTION OF ISCHEMIC STROKE – HOW AND TO WHAT EXTENT?

Dr Tse Tak Sun, Department of Medicine, Pamela Youde Nethersole Eastern Hospital
(June 2002 AIM Exit Assessment Exercise)

Stroke is a major cause of mortality and morbidity worldwide. Identification and optimal management of risk factors have been proven to be useful in prevention of ischemic stroke. Guidelines on management of various risk factors for primary prevention of ischemic stroke are recommended by prestige professional bodies.

The first part of this dissertation is a literature review with concise summary of the evidence regarding various established and potential stroke risk factors. The second part of the dissertation is a prospective pilot study of patients with first ever ischemic stroke admitted to Pamela Youde Nethersole Eastern Hospital from 1st November 2001 to 31th January 2002. Special emphasis is put on the evaluation of awareness and management of these risk factors in this group of patients and their implications in relation to the first ever stroke. A total of 75 patients were recruited in this study. Majority (93%) had modifiable risk factors identified, and 69% had at least two risk factors identified. Risk factors for atheroslerosis included: hypercholesterolaemia (68%); diabetes mellitus (41%); smoking (28%); and hypertension (75%). Cardioembolism was suspected in 23% of patients with atrial fibrillation, with or without underlying structural heart disease. Significant portion of these risk factors were identified after admission. Seventy-six percent of these patients had at least one risk factor under suboptimal control. Early

identification and optimal management of these factors may help decreasing the incidence of first-ever ischemic stroke.

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RETROSPECTIVE REVIEW OF ISCHAEMIC STROKE REHABILITATION AND SECONDARY PREVENTION MEASURES IN A LOCAL HOSPITAL

Dr Wong Ka Hung Bryan, Department of Medicine, Yan Chai Hospital (June 2002 AIM Exit Assessment Exercise)

Ischaemic stroke is one of the leading causes of death and serious disability worldwide. Rehabilitation in stroke unit can reduce the initial mortality rates, the need for institutional care after stroke, and even long-term mortality rate and functional dependency. Because of the limited resources in rehabilitation unit, accurate outcome prediction following stroke is important for proper delivery of post-stroke care. Therefore, I would like to conduct a retrospective study in Yan Chai Hospital to look for any easily identifiable clinical factors on admission to stroke rehabilitation unit (N=168) that would affect the primary outcome (disposition and mobility on discharge) and the secondary outcome (Barthel score efficiency- rate of improvement). The results of this study emphasize the importance of age (p=0.004,OR: 2.218, 95% CI: 1.282-3.836), severity of deficit (Barthel score on admission) (p<0.0005,OR: 0.371, 95% CI: 0.214-0.642) and alertness (p=0.018, OR: 2.201, 95% CI: 1.143-4.235) on disposition. There were 3 predictive factors (Barthel score on admission, alertness within 24 hours of admission and numbers of stroke's risk factors) influence the Barthel score efficiency. Among them, Barthel score on admission (p<0.0005) and alertness (p<0.0005) were the most independent predictive factors. A simple rehabilitation triage is given at the end of discussion.

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A REVIEW OF PATIENTS WITH SEVERE SKIN REACTION TO DRUGS

Dr Wu Tak Chiu, Department of Medicine, Queen Elizabeth Hospital (June 2002 AIM Exit Assessment Exercise)

Stevens-Johnson syndrome (SJS) and Toxic epidermal necrolysis (TEN) are, life-threatening, drug-induced cutaneous reactions. This study was conducted to review the associated culprit drugs, clinical manifestations, clinical outcomes, and management of the patients hospitalized in Queen Elizabeth Hospital from January 1996 to December 2001 with the diagnosis of SJS or TEN. 37 and 7 patients were diagnosed to have SJS and TEN, respectively. In general, TEN patients were older than SJS patients. Antigout drug, antimicrobials and anti-convulsant were the three commonest groups of culprit drugs responsible for SJS/TEN. Allopurinol was the most frequently identified drug (15/44, 34%). The mortality rate of TEN patients was significantly higher than that of SJS patients (71.4% vs 8.1%. *P*=.003). Bacteremia and pneumonia were the major causes

of death. Use of systemic corticosteroid therapy did not show any improvement in morbidity and mortality.

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MULTIPLE MYELOMA: EXPERIENCE IN A LOCAL HOSPITAL

Dr Yue Tak Tai Andrew, Department of Medicine, Yan Chai Hospital (June 2002 AIM Exit Assessment Exercise)

Multiple myeloma is the second commonest hematological malignancy in the United States. The age-standardized incidence in Hong Kong are 2.2 per 100,000 per year and 1.7 per 100,000 per year in men and women respectively. Because of the indolent nature of the disease, in Hong Kong, these patients are often managed in secondary centers. This article consists of three parts. It begins with the case histories of two patients with unusual presentation. One patient has myelomatous involvement of the pleura. The other patient has pseudo-nonsecretory disease with light chain deposition in kidneys. The second part is a retrospective analysis of 35 cases of multiple myeloma diagnosed in Yan Chai Hospital, a general hospital serving a population of 300,000. The clinical features, laboratory findings, treatment regimen, response to therapy and patient outcome are examined. Data from secondary centres may have the merit of minimization of referral biases. Our patients are older with median age 73. The commonest immunoglobulin class is IgG. Median survival is 18 months. Infection accounts for 64% of death. Multiple myeloma is an old disease, first reported in 1845. However, efforts in improving therapeutic strategies are ongoing. The article will conclude with a literature review on the recent advances in management of myeloma, with focus on the implication on patient care in secondary centers.

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CUTTING BALLOON ANGIOPLASTY

Dr Yam Ping Wa, Department of Medicine and Geriatrics, Tuen Mun Hospital (June 2002 Cardiology Exit Assessment Exercise)

Cutting balloon is a unique balloon catheter that makes controlled endovascular surgical incisions that cause less vessel wall injury and intimal proliferation and inflammation.

Cutting balloon has been shown to be superior in treatment of instent restenosis, small coronary vessel, aorto-ostial and ostial side branch lesion, bifurcation lesion and calcified coronary lesions in compared with plain old balloon angioplasty. However, complications of coronary aneurysm, rupture, balloon rupture and catheter fracture had been reported.

22 patients (total 37 lesions) had undergone cutting balloon angioplasty in Tuen Mun Hospital from January 2001 to January 2002. Overall pre-procedural stenosis was 68.2± 11.7% and post-procedural stenosis was 12.6±13.1%. In-hospital major adverse cardiac event (MACE) occurred in one (2.7%) patient (non-Q myocardial infarction). Clinical MACE was assessed with mean follow-up period of 37±19 weeks. Target vessel revascularization occurred in 10% of patient and there was neither cardiovascular death nor myocardial infarction.

Hence, Cutting balloon angioplasty is a feasible, safe, and effective technique with good acute and long-term clinical results.

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THE PULMONARY ARTERY CATHETER - THE PITFALLS, A LOCAL EXPERIENCE AND BEYOND THE CONTROVERSY

Dr Lau Chun Wing, Department of Medicine, Pamela Youde Nethersole Eastern Hospital
(June 2002 Critical Care Medicine Exit Assessment Exercise)

The pulmonary artery catheter (PAC) was introduced by Drs HJC Swan and W Ganz in 1970, with subsequent modifications. Despite its widespread use, its value in decreasing mortality in critically care patients is controversial. Some studies even reported higher mortality associated with its use. Numerous pitfalls exist regarding data acquisition of the primary variables like the pulmonary capillary wedge pressure and thermodilution cardiac output, including mechanical ventilation, respiratory excursions, West zones of catheter placement, hypovolaemia, high pressure surrounding the ventricles, left or right-sided valvular lesions, intracardiac or intrapleural shunts, etc. There are also errors in data interpretation, including inadequate knowledge on the complicated relationship between PCWP and compliance, volume status, and pulmonary edema. Difference in goal, choice and timing of therapy also affects the outcome. A local experience revealed that insertion of PAC was not a common event, and was limited to those patients with uncertain diagnosis or requiring diagnostic monitoring, and in those with complex haemodynamic profiles. Change of central venous pressure (CVP) over time was correlated with that in PCWP, but there was no correlation between the CVP and PCWP at specific points. Ethical problems in performing randomized clinical trials do not exist if there is clinical equipoise, i.e. < 70% experts would determine whether PAC is indicated or contraindicated for a certain clinical indication. There are at least five on-going prospective, randomized controlled trials on PAC use. Preliminary results show that although PAC does not confer extra benefits, it also does not increase mortality. Less invasive alternatives of haemodynamic monitoring are also being developed and validated.

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THE USE OF RECOMBINANT-ANTIGEN ENZYME IMMUNOASSAY (EIA) AS A SEROLOGICAL SCREENING TEST FOR SYPHILIS IN PEOPLE WITH HUMAN IMMUNODEFICIENCY VIRUS (HIV) INFECTION IN HONG KONG

Dr Ho Ka Keung, Department of Health (June 2002 Dermatology & Venereology Exit Assessment Exercise)

Backgrounds and Objectives Serological screening of syphilis is an important tool for detection and control of the disease in HIV infected patients. However, unusual serological manifestations have been reported in HIV infected patients. We studied the performances of Recombinant-Antibody Enzyme Immunoassay (ICE Syphilis EIA) and Fluorescent Treponemal Antibody absorbed (FTA-Abs) as serological screening tests for syphilis and to determine the period prevalence of syphilis in HIV infected patient attending Integrated Treatment Centre (ITC) from September 2001 to December 2001.

Design Cross-sectional study.

Methodology At initial recruitment, HIV antibody status, demographic data, sexual behaviour and patients' past history of sexually transmitted infection and treatment were collected. Serological screening tests for syphilis (VDRL, FTA-Abs, ICE Syphilis EIA) and CD4 count were performed. All enrolled patient will be reassessed twelve weeks later by history, physical examination and syphilitic serology to confirm the status and stage of syphilis at initial recruitment.

Results Among 433 analysable subjects, their mean age was 39.4 years. Three hundred and fifty-eight (82.7%) of them were local Chinese. The period prevalence of syphilis in ITC was 11.1% (48/433), 75.0% (36/48) of them presented with latent syphilis and the commonest presentation were late latent syphilis (60.4% [29/48]). There were 30 (6.9% [30/433]) inconclusive results in FTA-Abs and none in ICE Syphilis EIA. If all the borderline results of FTA-Abs were assumed to be reactive, the performance of ICE Syphilis and FTA-Abs in terms of sensitivity (97.9% vs 100%) and the negative predictive value (99.7% vs 100%) were comparable.

Conclusions The prevalence of syphilis in ITC within the period of September 2001 to December 2001 was 11.1% (48/433), 75.0% (36/48) of them presented with latent stages of syphilis and the commonest presentation were late latent syphilis (60.4% [29/48]). ICE Syphilis EIA is an ideal screening test for syphilis in HIV infected patients in local population because of its high sensitivity, high negative predictive value and low inconclusive results

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MYCOSIS FUNGOIDES (A STUDY OF 40 CASES IN HONG KONG)

Dr Ku Lap Shing, Department of Health (June 2002 Dermatology & Venereology Exit Assessment Exercise)

This is a multi-clinic, 35-year, retrospective study to determine the clinico-pathological characteristics, treatment and disease outcomes of 40 patients with mycosis fungoides (MF) / Sezary syndrome in the Social Hygiene Service (SHS), Hong Kong. There were 27 males and 13 females and the mean age at diagnosis was 56.4, about 10 years younger than that in the West and Japan. A bimodal age distribution for male MF patients was observed. There were an average of 1.17 MF cases per 10,000 new skin cases per year in the SHS from 1988 to 2000. Based on figures in the SHS alone, the incidence in Hong Kong was estimated to be 0.044 per 100,000, about ten-fold less than the West. Twenty-six percent of the patients with available history were found to have prolonged occupational exposure to petrochemical or radioactive substances. The average duration from onset of symptoms to diagnosis was 95.6 months and that from first seen by dermatologists to diagnosis was 12.7 months. Eighty-five percent of the patients presented with patches and plaques without lymph node or visceral involvement and pruritus was absent in 40% of the patients. A mean of 1.48 biopsies were needed to establish the diagnosis and only 58% of the MF skin biopsies were reported as histologically diagnostic of MF. Atypical lymphocytes, epidermotropism, interface changes and Pautrier's microabscesses were four most frequently encountered features that attained statistical significance. Fifty-five percent of the patients were staged with the TNM system and 77.3% were in stage I disease. Sixty-nine percent of all patients were treated with psoralen–UVA (PUVA) as their initial therapy and the complete response rate and relapse rate were 78.3% and 66.6% respectively. Compared with the literature, relatively short PUVA maintenance therapies resulting in short disease remissions were noted. Disease progression to more advanced stages was only seen in 15% of the patients. The 5-year survival rates for the whole group and stage I patients were 88.8% and 100% respectively. In conclusion, MF is rare among Hong Kong Chinese and majority presented as skin-limited non-progressive disease.

Keywords: Mycosis fungoides; Sezary Syndrome; Cutaneous T-cell lymphoma; Social Hygiene Service; Hong Kong.

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ONCOGENIC HUMAN PAPILLOMAVIRUS INFECTION-EPIDEMIOLOGY AND ASSOCIATED RISK FACTORS IN LOCAL HIGH-RISK WOMEN

Dr Tang Wai Ki Henry, Department of Health (June 2002 Dermatology & Venereology Exit Assessment Exercise)

Background Oncogenic human papillomavirus (HPV) is associated with cervical neoplasia. Human immunodeficiency virus-1 (HIV-1) infected individuals and/or those practicing high-risk sexual behaviour are expected to have high prevalence of this infection. **Objective:** To determine the prevalence of oncogenic HPV, examine its relationship with cervical dysplasia and explore its associated factors among high-risk women in Hong Kong. **Method:** It was a cross sectional study involving a HIV centre and two sexually transmitted disease clinics. All female attendees between March and September 2001 were invited and recruited after consent. Cervical smears were collected

and interpreted by liquid-based method. Residual cervical materials were tested for HPV by a combination of polymerase chain reaction and nucleotide sequencing techniques.

Results Two hundred and forty-five females were recruited; 91.4% were local Chinese and aged from 17 to 68-years-old. Forty women were HIV-1 positive. In 242 evaluable participants, 117 women (48.3%) were diagnosed HPV positive. Fifty-eight participants (24.0%) had oncogenic HPV and three of them (5.2%) had multiple infections. Thirty-eight patients (15.5%) had cytological abnormalities: atypical squamous cells of undetermined significance (12, 4.9%), low-grade squamous intraepithelial lesion (24, 9.8%), high-grade squamous intraepithelial lesion (2, 0.8%), and no invasive malignancy were detected. In univariate analysis, concurrent lower genital tract infections, genital warts and HIV-1 infection showed significant negative and positive associations with oncogenic HPV respectively. **Conclusion:** The prevalence of oncogenic HPV in our study group was 24.0%. HIV-1 positivity confers a higher risk for this infection. HPV testing is potentially useful to triage HIV-1 patients for early colposcopic investigation.

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REGULATION OF EXTRACELLULAR WATER BY GROWTH HORMONE AND SEX STEROIDS

Dr Ng Ying Wai, Department of Medicine, Queen Elizabeth Hospital (June 2002 Endocrinology, Diabetes Metabolism Exit Assessment Exercise)

Introduction Growth hormone and sex steroids play an important role in regulation of body composition. There is increasing evidence of regulation of extracellular water (ECW) by GH and sex steroids. Their interplay is however, not well understood. Bromide-dilution HPLC method was one of the tools used for measuring ECW and was validated in the first study. Two clinical studies were performed to enhance the understanding of the effects of GH and sex steroids in regulation of ECW and their possible interplay.

Methods Bromide-Dilution HPLC method for the measurement of ECW was validated. Clinical Study 1 investigated the effects of GH alone versus GH plus testosterone treatment on ECW in seven men with hypopituitarism. Clinical Study 2 investigated the effects of oral estrogen on body composition changes in eleven women with active acromegaly.

Results Intra-assay and inter-assay variability of HPLC analysis of Br were 1.2% and 1.3-4.5% respectively. Clinical Study 1: GH increased ECW in men with hypopituitarism. Co-treatment with Testosterone further enhanced the effect. Clinical Study 2: Oral estrogen decreased fat-free soft tissue mass and body cell mass in women with active acromegaly. There was no change in ECW, fat mass, bone mineral content or total bone mineral density. IGF-1 level was normalized. Growth hormone binding protein level was increased by more than two folds.

Conclusions Br-dilution HPLC technique is a simple, safe and reliable method for measurement of ECW. Testosterone enhanced the anti-natriuretic action of GH in men with hypopituitarism. Clinicians should alert to fluid retention in patients on GH and testosterone replacement. Oral estrogen normalized IGF-1, reversed some of the body composition changes in acromegaly and may thus be a adjuvant treatment in acromegaly.

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OBESITY –CURRENT UNDERSTANDING AND RECENT ADVANCES

Dr Tso Wai Kwan Annette, Department of Medicine, Queen Mary Hospital (June 2002 Endocrinology, Diabetes Metabolism Exit Assessment Exercise)

Obesity is a global problem with immense implication to the cost of health care due to its associated complications. Recent studies have revealed that the development of obesity is dependent on the interplay of nutritional excess, polygenetic determination of susceptibility and the neuroendocrine regulation of energy homeostasis. However, the physiological regulation of energy balance in the human is not well understood.

The present communication reports the neurophysiological changes resulting from dietary manipulation in different strains of in-bred mice. The results show that feeding with an obesity-inducing diet produced alterations in the expression of neuropeptides both acutely and after prolonged exposure, in particular in the leptin-melanocortin pathway. These changes were influenced by the caloric density of the diet and some strain-specific, presumably genetic, factors. It is hoped that understanding the interactions involved in human obesity will offer prospects in the treatment of obesity.

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SOMATOSTATIN IN THE PREVENTION OF POST ERCP PANCREATITIS

Dr Ho Chi Pang, Department of Medicine & Geriatrics, Princess Margaret Hospital (June 2002 Gastroenterology & Hepatology Exit Assessment Exercise)

Background Acute pancreatitis is the most common complication after ERCP. Prophylactic somatostatin infusion has been demonstrated to reduce the incidence of post ERCP pancreatitis. However, the cost for continuous intravenous infusion and in-patient treatment to deliver somatostatin is high. Bolus somatostatin injection has also been shown to inhibit pancreatic exocrine secretion and reduce the incidence of post ERCP pancreatitis.

Aim The aim of this study was to see if bolus somatostatin injection could prevent post ERCP pancreatitis in our local population. Possible patient and procedure related risk factors for post ERCP pancreatitis were also studied.

Patient and methods A single centred, randomized, double-blind, placebo controlled, prospective study was carried out in patients undergoing diagnostic +/- therapeutic ERCP. Patients were randomized to receive bolus injection of 250mcg somatostatin (group A) or the same volume of normal saline injection as placebo (group B) just before the cannulation of the papilla. The incidence of pancreatitis was compared between the two groups by Fisher's Exact test. Possible risk factors were identified by comparing patients with or without pancreatitis using student t-test, chi square test (or Fisher's Exact test), or Mann Whitney test. Independent risk factors were then identified by backward stepwise multiple logistic regression.

Results From 8/1/1999 to 13/2/2001, 160 patients were recruited for study with 80 patients in each group. Mean age of patients was 58 $\pm$ 14, with a male to female ratio of 1.3: 1. 10 patients (6.3%) developed post ERCP pancreatitis, 4 patients (5%) in the somatostatin group (3 mild and 1 moderately severe) and 6 patients (7.5%) in the placebo group (5 mild and 1 moderately severe). The difference did not reach statistical significance (P=0.75). All pancreatitis were self-limiting and uncomplicated.
120 patients (75%) developed hyperamylasemia. There was no significant difference between the two groups in terms of the incidence of hyperamylasemia (P=0.72), significant hyperamylasemia (amylase >3x ULN) (P=0.41), mean amylase level at 4 hours (P=0.51) and 18 hours (P=0.53) after ERCP, and persistent abdominal pain (P=1.0). Longer procedure time (P=0.002), difficult selective biliary cannulation (P=0.016), multiple pancreatic duct cannulation (P=0.024), secondary or higher degree of opacification of pancreatic duct (P=0.035) were associated with post ERCP pancreatitis in univariate analysis. Longer procedure time was found to be the only independent risk factor for post ERCP pancreatitis in multivariate model. Therapeutic procedures performed in the study (papillotomy, stone extraction, biliary stenting, cytology brushings) were not associated with increased post ERCP pancreatitis (P=0.319)

Conclusion Prophylactic bolus somatostatin injection did not significantly reduce the incidence of post ERCP pancreatitis in unselected patients. Longer procedure time, difficult selective biliary cannulation, increased number of pancreatic duct cannulation, and secondary or higher degree of opacification of pancreatic duct were associated with increased risk of post ERCP pancreatitis. Only longer procedure time was found to be an independent risk factor for post ERCP pancreatitis.

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THE ROLE OF CYCLOOXYGENASE-2 (COX-2) IN HEPATIC FIBROSIS

Dr Hui Yui, Department of Medicine & Therapeutics, Prince of Wales Hospital (June 2002 Gastroenterology & Hepatology Exit Assessment Exercise)

Objectives Hepatic fibrosis is the wound-healing response of liver to chronic injury, which if persistent can lead to cirrhosis and hepatic failure. Hepatic stellate cells (HSC) are the primary source of extracellular matrix in normal and fibrotic liver. Activation of HSC is the central event of fibrogenesis. Cyclooxygenase 2 (COX-2) may have an

important role in hepatic fibrosis in chronic liver disease. The study aimed to study the role of COX-2 in HSC activation and liver fibrosis.

Methods Both *in vitro* and *in vivo* studies were performed. Immortalised cell line of HSC was studied for the inducibility of COX-2 enzyme by TGF-β or oxidative stress. TGF-β is the most potent stimulus of fibrogenesis in HSC. The effect of COX-2 inhibition or exogenous PGE_2 on TGF-β-induced collagen synthesis was investigated. *In vivo* study involved the use of a rat model of hepatic fibrosis induced by thioacetamide (TAA) treatment. Celecoxib, a COX-2 inhibitor, was given to the animals after fibrosis had been induced and its effect examined.

Results COX-2 was induced by TGB-β or oxidative stress in HSC. TGF-β stimulated the synthesis of collagen in HSC but the effect was not blocked by COX-2 inhibitor. PGE_2, however, syppressed TGF-β-induced collagen synthesis in HSC. In the TAA-treated rats, celecoxib caused worsening of hepatic fibrosis.

Conclusions Findings of both the *in vitro* and *in vivo* studies suggest that COX-2 have a negative feedback role in hepatic fibrosis. Inhibition of its activity may result in increased liver fibrosis.

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REVIEW OF PYOGENIC LIVER ABSCESSES IN KWONG WAH HOSPITAL FROM 1997 TO 2002- A 5-YEAR EXPERIENCE

Dr Tung Yau Man Stephen, Department of Medicine & Geriatrics, Kwong Wah Hospital
(June 2002 Gastroenterology & Hepatology Exit Assessment Exercise)

Liver abscess is nit an uncommon disease in our hospital. From a search in the computer-based patient record of Kwong Wah Hospital, there were a total of 157 case admissions with liver abscess from 1997 to 2002. One hundred and three patients were then reviewed. Patients may present with pneumonia-like features like fever, pleurisy and shortness of breath. On the other hand, patients may present with septicaemic shock and multi-organ failure. Eighty one percent of our patients had fever and only slightly more than half of them had abdominal pain on admission. However, cough was present in 26 percent of the patients together with CXR abnormalities in 18 percent. The right lobe of the liver was most frequently involved though hepatomegaly was present clinically in only 7 percent. Fifty-four percent of patients had solitary abscess and the most common pathogens were *Klebsiella pneumoniae*, *Eschericha coli* and *Streptococcus milleri*. Eight percent of cultures were negative and another 8 percent showed anaerobes. Diabetes mellitus (38%) and biliary disease (20%) were the commonest concurrent medical illness. Benign biliary causes and malignancy were the commonest suspected aetiology for the development of liver abscess. Ten deaths were recorded during this 5 year period and the presence of underlying liver malignancy ($p=0.03$) and septic shock at presentation ($p=0.049$) were associated significantly with death.

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APPLICATION OF GAIT ANALYSIS IN CLINICAL REHABILITATION-A STUDY ON RHEUMATOID PATIENTS

Dr Ho Tze Kwan Carmen, Department of Medicine, Tung Wah Hospital (June 2002 Rehabilitation Exit Assessment Exercise)

All recruited subjects fulfilled the American College of Rheumatology (ACR) criteria for the diagnosis of rheumatoid arthritis. A group of healthy subjects without history of any arthritis was also enrolled as control. Kinetic and kinematic parameters including gait cycle (second), velocity (km per hour), stride length (cm), cadence (steps per minute), and single and double support time (second) were measured in both groups. Demographic data including age, sex, and body weight and body height of the two groups were comparable. Rheumatoid subjects had shorter stride length and low walking velocity in two self selected speeds. The maximum knee flexion angle was diminished compared with controls. There were no significant correlations between standard rheumatoid arthritis outcome measures (C-reactive protein, erythrocyte sedimentation rate, total swollen and tender joint count) and kinematic and kinetic parameters.

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THE IMPORTANCE OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) IN AFFECTING THE OUTCOMES OF CARDIAC REHABILITATION

Dr. Lam Siu Pui, Department of Rehabilitation and Extended Care, TWGHs Wong Tai Sin Hospital (June 2002 Rehabilitation Exit Assessment Exercise)

Aims To determine if chronic obstructive pulmonary disease (COPD) can adversely affect the outcomes in cardiac rehabilitation.

Method A retrospective study on the outcomes of cardiac patients with COPD participated in cardiac rehabilitation program compared with age, sex and cardiac function matched controls.

Results 35 cardiac patients with COPD (31 male, 4 female) with a mean age of 68.7 and 29 cardiac patients without COPD (26 male 3 female) with a mean age of 65.8 were included. The mean follow up period (655 vs. 640 days), the body mass index (23. 9 vs. 24.2 kg/m^2), exercise habits were similar between COPD and control groups. Their LV ejection fraction (53.4% vs. 53.2%) was also similar with majority (67.2%) post-AMI with PTCA performed in 57% and 66% in the respective groups. COPD patients had smoking history and airflow obstruction confirmed by lung function tests (mean FEV_1 1.46 L, FVC 2.39 L, FEV_1/FVC 61.5%).

The hospitalization rate over a 2-year period was 2.26 in COPD group and 1.14 in the control group. The mean hospitalization days were 11.4. and 4.3 respectively. There were 3 deaths in COPD group but none in the control.
COPD patients had significantly lower exercise capacity in all phases as shown by the 6-minute walking test (6MWT) and treadmill exercise test. 6 MWT distance (331/409 meters in phase I, 351/430 in phase II, 366/456 in phase III and 370/438 in phase IV) and METS achieved in treadmill (I: 3.5/5.4 II: 4.9/7.8 III 4.1/7.1, IV: 3.8/7.2) were significantly lower in COPD patients ($p < 0.05$). Both groups showed significant improvement in the phase 2 exercise capacity. However, the improvement declined gradually at phase 3 and 4 in COPD patients but maintained in non-COPD patients.

All the 3 ADL dependent non-COPD patients gained independence after rehabilitation as compared with 4/7 COPD patients. COPD patients had a lower baseline quality of life (QOL) scores and the gain in QOL scores with cardiac rehabilitation was also less.

Conclusions (1) COPD patients had less favourable outcomes in cardiac rehabilitation when compared with age, sex and cardiac function matched control with a higher hospitalization rate, total hospital days and mortality. (2) COPD patients had lower exercise capacity in all phases of cardiac rehabilitation. (3) Both the baseline QOL scores and the improvement after rehabilitation is less than that in non-COPD patients. (4) The importance of COPD in affecting the cardiac rehabilitation outcomes should be further evaluated. Possible strategies to improve outcomes in COPD patients include program modification or a combined cardiopulmonary rehabilitation program, optimalization of COPD management with reference to GOLD (Global Initiative for chronic obstructive pulmonary disease) guidelines, attention to the oxygenation status and aggressive smoking cessation interventions.

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TUMOR HYPOXIA: A POTENTIAL NEW THERAPEUTIC TARGET IN NASOPHARYNGEAL CARCINOMA

Dr Hui Pun, Department of Clinical Oncology, Prince of Wales Hospital (June 2002 Medical Oncology Exit Assessment Exercise)

Background Tumor hypoxia is associated with resistance to therapy and poorer survival. Hypoxia induces the expression of hypoxia-inducible factor-1α and 2α (HIF-1α and HIF-2α), which then up-regulate downstream genes carbonic anhydrase IX (CA IX) and vascular endothelial growth factor (VEGF). Detection of these intrinsic hypoxia markers may help to identify subgroups of patients that could benefit from hypoxia targeting therapy.

Method We studied the expression of HIF-1α, HIF-2α, CA IX and VEGF by immunohistochemistry in nasopharyngeal carcinoma (NPC) biopsy tissues from 90 consecutive patients recruited between 1994 and 1997 in a randomized controlled trial of

chemo-radiation in locally advanced NPC, and investigated their relationship with survival.

Result HIF-1α was expressed in 52/90 (58%), HIF-2α in 6/89 (7%), CA IX in 51/90 (57%) and VEGF in 54/90 (60%) of tumors. Tumor HIF-1α expression correlated significantly with that of CA IX ($p = 0.008$) and VEGF ($p = 0.003$). High tumor HIF-1α expression was associated with a trend for poor overall survival ($p = 0.06$). Tumors with a positive hypoxia profile (defined as high expression of both HIF-1α and CA9) were associated with worse progression free survival ($p = 0.04$). Tumors with both hypoxia and angiogenic profile (defined as high VEGF expression) were associated with a worse progression free survival ($p = 0.0095$).

Conclusion Over-expression of HIF-1α, CA IX and VEGF is common in NPC, which is probably related to hypoxia up-regulated expression involving HIF dependent pathway, and is associated with poor prognosis. Targeting hypoxia may be useful in the treatment of NPC.

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SCREENING AND SURVEILLANCE FOR HEPATOCELLULAR CARCINOMA – REVIEW AND A CLINICAL STUDY

Dr Lee Chi Yan Conrad, Department of Clinical Oncology, Prince of Wales Hospital
(June 2002 Medical Oncology Exit Assessment Exercise)

Introduction As mentioned above, early detection of hepatocellular carcinoma (HCC) may the promise to curative resection, and although there is no solid data to support a decrease in disease specific mortality, physicians still routinely offer screening tests to patients with cirrhosis or chronic hepatitis. Chalasani et al **[1]** reported that 84% of physicians who responded to their survey screened their cirrhotic patients with serum alpha-fetoprotein (AFP) and abdominal ultrasound (USS) in spite of the controversy that surrounds these screening methods.

The sensitivity of serum AFP for HCC development was only 48.6% in a study that adopted a high cut-off level at >500 ng/ml **[2]**. Lower cut-off values in other studies give higher sensitivity with a corresponding trade-off in specificity. In most of the screening studies, the absence of disease is confirmed by a negative USS study, thereby conferring the status of the "gold standard" to the USS over and above AFP **[3,4]**. However, there is limited information on the "real" false negative rate of USS in HCC screening.

The false negative rate of screening USS would be expected to be higher among patients with elevated serum AFP. Cirrhotic patients with persistently elevated serum AFP (>20 ng/ml) were reported to have 14 times higher risk of developing HCC over patients having normal levels **[5]**. A substantial portion (29%) of patients with persistently elevated serum AFP and negative USS at their initial screening developed HCC during

follow-up. About 75% of all HCCs diagnosed in a prospective screening program were associated with elevated serum AFP **[6]**.

There are also circumstantial evidence that small HCCs have been missed by USS. In a study by McMahon et al **[7]**, 8 out of 19 patients who had successful resection of the small HCCs detected by screening with AFP and USS suffered from early recurrence, suggesting there were additional small lesions not detectable by USS at the time of diagnosis and resection.

In addition, our group has previously reported on the use of "hepatoma specific" AFP isoform in early detection of HCC **[8]**. Among the 19 patients with the presence of the "hepatoma specific" band and confirmed HCC, 15 had elevation of AFP (>50 ng/ml) prior to evidence of tumor on USS. This again suggests that early HCCs are prone to be missed by USS.

We initiated a prospective screening study in 1997 using AFP and USS as the primary screening tests, and used hepatic angiogram with lipiodol CT scan (HAG-CT) and histology as the gold standard for diagnosis of HCC. Based on the data from this project we have prospectively defined the diagnostic utility and false negative rates of screening USS in hepatitis B carriers with elevated serum AFP.

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TUMOR RESPONSE TO PLATINUM-BASED CHEMOTHERAPY IN ADVANCED NON-SMALL CELL LUNG CANCER WITH EPIDERMAL GROWTH FACTOR RECEPTOR OVEREXPRESSION

Dr Wong Tze Ming Herman, Department of Medicine & Therapeutics, Prince of Wales Hospital (June 2002 Medical Oncology Exit Assessment Exercise)

Primary lung cancer is one of the most common cause of cancer death in the world. In Hong Kong, it ranks the most fatal malignancies in men & the second common cancer in women (1). It also represents one of the most common malignancies in United States and European countries (2). Changes in the social custom and the socio-economical environment have led to great increase in smoking which is the primary etiology to lung cancer death in developed countries. Tobacco consumption has been rising steadily in the female genders (3) despite the recent decline in United States. It is still on the rise in Asian countries, particularly China.

Lung cancer is classified into small cell lung cancer and non-small cell lung cancer (NSCLC). Eighty percents of the lung cancer cases are non-small cell lung cancer. There are various cell types depending on the histological characteristics. Squamous cell carcinoma is common in smokers whereas adenocarcinoma is more common in non-smokers and women. Large cell carcinoma and bronchioalveolar carcinoma represent minorities of the non-small cell types.

The only curative treatment is surgical resection. In surgically resectable stage I disease, the 5-years survival ranges from 60% to 80% (4). However, 75% of the patients present with in-operable disease (5). The overall 5-year survival rate of all lung cancer patients is still less than 15% (6) and the mortality rate has only decreased by 6% in the last two decades (7). This improvement is due to salvage treatment with chemotherapy for advanced lung cancer but the prognosis is still dismay worldwide despite active research for better treatment. Stopping smoking may still be the only effective way to reduce lung cancer death. As Sir Richard Peto, Professor of epidemiology at the University of Oxford has stated before: “if we want to reduce death from cancer, either we have to make sure people avoid getting the disease or we have to make sure they are treated successfully. For prevention, stop using tobacco dominates.”

The focus of this review is to explore the development of cytotoxic in advanced non-small cell lung cancer. I will also briefly review the emerging role of biological target therapy in lung cancer. The relationship between epidermal growth factor receptor (EGFR) and lung cancer will be explored. The primary aim of this study is to review the incidence of EGFR overexpression in advanced non-small cell lung cancer patients and its correlation to tumor response of platinum-based chemotherapy.

Note: For obtaining the full dissertation, please contact the author directly.