

## Abstracts of the Scientific Symposium on Emergency Medicine Hong Kong, 28-29 October 2005

---

### Free papers Session F1: Nursing

#### 1. EFFECT OF MUSIC ON OPERATIVE ANXIETY IN CHINESE PATIENTS UNDERGOING LACERATION REPAIR IN THE EMERGENCY ROOM

WH Ip

Accident & Emergency Department, United Christian Hospital, Hong Kong

**Background:** Surgical anxiety has been cited as one of the major emotional disturbances found in emergency patients with wound laceration. It has been shown that anxiety can disrupt patients' recovery by reducing psychological well being and cooperation with self-care activities. Research has found that nurses in the emergency room do not give prior attention to the psychological condition of the majority of patients with 'minor' illness. Nurses should find a way to bridge the gap between patients' need and nurses' care. Music could be a strategy to ease patients' emotional problem generated in the emergency room and which requires relatively little direct nurse-patient contact. Music has been proven to be a potential anxiolytic intervention in the local research literature. However, previous results cannot be generalised due to conflicting results, weaknesses in research design and limited application of music in the emergency room setting.

**Objective:** The objective of this study was to examine whether listening to music had an effect in reducing anxiety in Chinese adults when undergoing laceration repair in the emergency room.

**Methods:** The study was based on quasi-experimental with pre-test and post-test measures design. A total of 106 Chinese adult patients undergoing laceration repair in the emergency room were recruited and randomly assigned to either control group (n=51) or music group (n=55). The control group with routine laceration repair was compared with the music group who listened to music of their own choice while having their routine laceration repair. Anxiety was measured by a subjective self-reported scale – the Chinese version of State Trait Anxiety Inventory (C-STAI) state portion and physiological variables – blood pressure and pulse rate.

**Results:** The findings indicated that listening to music did not significantly reduce state anxiety and physiological variables, though there was a reduction trend in most of the research parameters in the music group, namely, C-STAI state portion, systolic blood pressure and diastolic blood

pressure. The mean pre-test scores for C-STAI state score were at the lower range: 40.65 (SD=12.93) for the control group and 40.51 (SD=11.56) for the music group. Besides, music was generally (77%) accepted by the research subjects. **Conclusion:** The findings suggested that listening to music did not reduce surgical anxiety in the emergency room. However, there existed a noteworthy decrease in most variables on anxiety measurement in the music group as compared to the control group. The potential anxiolytic power and the general acceptance of music suggested that research on the application of music in the emergency setting is worthy to be continued. The non-significant result might be attributed to failure in controlling extraneous variables: age, gender, medical history, subjective pain level and operating experience in the study. Furthermore, the high expectation of self-control on emotion and distinctive health concept of the Chinese culture might have contributed to the deficit in anxiety measurement; and hence a lower reported score on anxiety level.

#### 2. THE USE OF A MODIFIED BORG SCALE AS A TRIAGE CRITERION IN ASSESSING DYSPNOEA ON PATIENTS WITH CHRONIC OBSTRUCTIVE AIRWAY DISEASE OR ASTHMA

Mabel CF Lam

Accident & Emergency Department, Queen Elizabeth Hospital, Hong Kong

Dyspnoea is a common presenting symptom in patients attending the accident and emergency department (AED). The symptom of dyspnoea is one of the most significant complaints of patients with respiratory disorders such as chronic obstructive airway disease (COAD) or asthma. Rapid and accurate assessment is crucial at the first stage of assessing the dyspnoeic patients, and can facilitate nurses to determine the urgency of care that the dyspnoeic patients may require, and thus to grade, categorise and triage the dyspnoeic patients so as to get appropriate medical care. Nowadays in the Hong Kong AED setting, assessing the degree of dyspnoea at the triage stage mainly focuses on objective data by monitoring the patients' physiological status such as oxygen saturation, peak flow rate and respiratory rate. However, dyspnoea is a symptom that is perceived, interpreted and rated by the individual experiencing it, which is subjective in nature. In order to have a complete assessment, the degree of dyspnoea should be measured both subjectively and objectively. The Modified

Borg Scale (MBS) is suggested as a valid and reliable tool to measure the subjective feeling of dyspnoea. The aim of this research was to explore the use of the MBS as a triage criterion in assessing the degree of dyspnoea in patients with COAD or asthma in Hong Kong. It was conducted in the AED of a Kowloon Central Cluster hospital in 2003. Dyspnoeic patients over 18 years old were recruited. A Chinese version of the MBS, a vertical scale labelled 0-10 with corresponding verbal expression of the level of dyspnoea, was administered at the triage stage and after respiratory treatment by the triage nurse, besides the objective data. A correlational cross-sectional design was adopted to determine the relationship between the objective data and the subjective feeling of dyspnoea (the MBS score), and the triage category and the score of the MBS. 53 males and 32 females presenting with dyspnoea were recruited. The average time used in administering the MBS was 18.32 seconds (SD=7.64). The results indicated there was a significant correlation between the change on objective data and the change of the score of the MBS after treatment ( $p<0.00$ ). The results also showed that there was a strong, significant negative correlation between the triage category and the MBS score ( $r = -0.668$ ,  $p<0.00$ ). To conclude, the MBS is a valid and reliable tool in measuring the subjective feeling of dyspnoea in an objective way. It is an efficient and user-friendly measurement that provides rapid and accurate information on the degree of dyspnoea. It can serve as an ongoing assessment for health care professionals in measuring dyspnoea, thus providing continuity of care. The MBS provides additional information about the subjective feeling of dyspnoea, which facilitates nurses in making decisions at the triage stage. Nurses can determine the urgency of the dyspnoeic patients and provide appropriate treatment and care according to the triage assessment. Adding the MBS in the triage categorisation system can improve nursing practice and enhance quality of care provision. Hence, the MBS is advised as a triage criterion in assessing the degree of dyspnoea in Chinese patients with COAD or asthma.

### 3. CLINICAL AUDIT – EFFECTIVENESS OF AN ECG UPDATE COURSE IN IMPROVING THE COMPETENCY OF EMERGENCY NURSES IN INTERPRETING ELECTROCARDIOGRAMS OF PATIENTS IN LIFE-THREATENING CARDIAC CONDITIONS

S Ting, MY Jong, YY Sze  
Accident & Emergency Department, United Christian Hospital, Hong Kong

The study aimed at evaluating the effect of a clinical audit in improving the competency of emergency nurses in interpreting electrocardiograms of patients with life threatening cardiac conditions in an emergency department of a local regional hospital. There were 51 and 42 nurses recruited in the audit in two separate periods. The effect of the ECG update course was illustrated by an ECG

Competency Test and Clinical Case Audit, which were carried out before and after the course. The competency of ECG interpretation was significantly improved ( $p=0.00$ ) after the course with diagnostic accuracy and triage accuracy 90% and 88% respectively compared with that before the course (69% and 70% respectively). However, the clinical performance of nurses in the clinical case audit before and after the course showed no statistical difference, 89% vs 91% ( $p=0.7$ ) and 85% vs 86% ( $p=0.9$ ) for ECG diagnostic and triage accuracy respectively. The ECG update course was found to be effective in improving the competency of emergency nurses but its effect on clinical performance warrants further evaluation.

### 4. MAJOR TRAUMA IN HONG KONG ELDERLY PATIENTS

Janice HH Yeung,<sup>1</sup> Annice LM Chang,<sup>2</sup> Wendy Ho,<sup>3</sup> FL So,<sup>4</sup> Beatrice Cheng,<sup>5</sup> NK Cheung,<sup>1</sup> HF HO,<sup>2</sup> WK Yuen,<sup>6</sup> CW Kam,<sup>4</sup> Colin A Graham,<sup>7</sup> Timothy H Rainer<sup>7</sup>

<sup>1</sup>Trauma & Emergency Centre, Prince of Wales Hospital; <sup>2</sup>Accident & Emergency Department, Queen Elizabeth Hospital; <sup>3</sup>Accident & Emergency Department, Queen Mary Hospital; <sup>4</sup>Accident & Emergency Department, Tuen Mun Hospital; <sup>5</sup>Head Office, Hospital Authority; <sup>6</sup>Department of Surgery, Queen Mary Hospital; <sup>7</sup>Accident & Emergency Medicine Academic Unit, the Chinese University of Hong Kong, Hong Kong.

**Background:** Trauma is a significant cause of morbidity and mortality in elderly patients aged above 55 years (Champion et al, 1989, 1990). The increasing elderly population in Hong Kong is challenging the health care yet there is little local data on geriatric trauma.

**Aim:** To describe the characteristics of major trauma in elderly patients from four trauma centres' trauma registry data.

**Methods:** This was a retrospective analysis from the 2002-2004 trauma registries of four Hospital Authority designated trauma centres with emergency departments which received a combined total of 708,058 patient attendances per year. Of these, 125,340 (18%) were trauma patients and 25,416 of these were aged  $\geq 55$  years.

**Results:** 809 injured patients aged  $>55$  years (58% male) were included. 785 (97%) sustained blunt injuries and 24 (3%) were penetrating injuries. Falls accounted for 404 (50%) cases (331 [82%] from  $<2$  metres) whilst pedestrians injured in motor vehicle crashes accounted for 230 (28%) cases. 434 (54%) patients suffered from severe injuries (ISS  $>15$ ) and 120 (15%) had critical injuries (ISS  $>30$ ). Head injury occurred in 543 (67%) patients. Among major trauma (ISS  $>15$ ) patients, 295 (68%) had severe head injuries (AIS [head]  $\geq 4$ ). Extremity injury occurred in 303 (37%) patients, facial injury in 130 (16%) patients, and abdominal injury in 102 (13%) patients. 483 (60%) trauma calls were activated according to trauma call activation criteria. 311 (38%) patients required operative treatment. Average length of stay (LOS) was 14 days (range 0.1-306 days). 354 (44%)

patients required intensive care unit (ICU) care, with an average LOS in ICU of 5.8 days. The overall mortality was 23%. In major trauma (ISS>15), the mortality rate of patients aged 65-74 was 32% and it increased to 57% if the patients were  $\geq 75$  years old. 270 (33%) patients required rehabilitation in non-acute hospitals after discharge from the trauma centre.

**Conclusion:** Falls and pedestrian injury are the two leading causes of trauma in elderly patients. Head and extremity injuries are the commonest injuries. They have a high mortality rate and are more likely to require intensive care and longer hospitalisation.

#### 5. ENDOTRACHEAL INTUBATION – CAN IT BE AN EXTENDED NURSING PRACTICE IN EMERGENCY DEPARTMENTS?

PF Lau

Accident & Emergency Department, Pamela Youde Nethersole Eastern Hospital, Hong Kong

**Background:** Endotracheal intubation (ETI) has been classified as a definitive measure to protect the airway of a critical patient by various leading and authoritative professional educational programmes like Basic Life Support, Advanced Cardiac Life Support, Advanced Trauma Life Support, Trauma Nursing Core Course, Advanced Trauma Care for Nurses. No matter under trauma or non-trauma situations, airway protection is always the top priority of care in both pre-hospital and hospital environment.

**Objective:** To ascertain views from emergency nurses on a potential extended nursing practice – endotracheal intubation.

**Design:** Self-administered questionnaire survey.

**Method:** Questionnaires were distributed to nurses of all rank currently working in 14 emergency departments under Hospital Authority's governance, with voluntary response expected.

**Result:** 217 out of 650 questionnaires returned, many of them had emergency experience >5 years (63.5%). The majority had learned ETI related knowledge and skills from various educational programmes (92.6%) and acknowledged the importance (95.9%) and benefit (92.1%) of early intubation. ETI was not perceived as a difficult task (44.6%) and nurse intubation could help some critical patients (53.9%) especially when a doctor was not immediately available (37.8%). However nurses did not perform ETI commonly in actual practice (92.6%). Though they were willing to do so (43.3%), they lacked confidence (72.4%). Some even showed reluctance (24%) to include ETI in nursing practice and disagreed to take over the job even after training due to its risky nature (35%).

**Conclusion:** Cognitive dilemmas were identified amongst respondents. Conceptually they acquired ETI knowledge and acknowledged the importance and benefit of early intubation but uncommonly performed it in their practice. Taking the account to meet professional recommendations and to consider patients' best interest, emergency nurses

should vigorously consider including ETI as an extended nursing practice. To ensure successful implementation of a new practice, a mechanism to continuously monitor the standard of performance and the attendance in continuing education is mandatory.

### Free papers

#### Session F2: Ultrasound

##### 6.

#### RAPID EVALUATION OF HAEMODYNAMICS IN THE CRITICALLY ILL PATIENT BY CONTINUOUS WAVE DOPPLER ULTRASOUND MEASUREMENT OF AORTIC MINUTE DISTANCE

BE Smith, AD Parakkal

Department of Anaesthetics and Critical Care, Broken Hill Base Hospital, NSW, Australia

One of the most important physiological variables to assess in the critically ill patient is the cardiac output (CO). Measurement of CO has always involved a high degree of invasiveness, as in the pulmonary artery catheter, or relatively poor accuracy with low invasiveness devices such as transoesophageal Doppler. The advent of a highly accurate yet entirely non-invasive monitor for cardiac output determination by using continuous wave transcutaneous Doppler ultrasound (Ultra Sonic Cardiac Output Monitor, (USCOM) USCOM Ltd., Sydney, Australia) allowed for the possibility of rapid (less than ten minutes) determination of CO in emergency department patients. The derived data could then be used for optimising early goal directed therapy and normalising haemodynamics. The first part of the study involved determination of the normal haemodynamic variables and cardiac output in 250 volunteers with no known history of cardiovascular disease nor any recent medication history. Preliminary medical screening of the volunteers resulted in the elimination of 13 subjects (5.2%), with unexpected findings of significant pathology on ultrasound imaging or non-diagnostic quality images on USCOM evaluation, from further study. The remaining 237 study subjects had ages ranging from 2.5 years to 71 years, with a weight range of 15 to 135 kg. The sex ratio was 125 females to 112 males (52.7% vs 47.3%). During this part of the study it was observed that the aortic minute distance (AMD), derived from the product of the velocity-time integral and the heart rate, showed a very strong correlation with the cardiac index. (Cardiac index is the cardiac output divided by the body surface area, which provides a comparative index between individuals independent of age, height, weight, sex or adiposity.) The AMD could be measured in less than 30 seconds in 98% of study subjects (232/237). Only seven otherwise normal study subjects were found to have an AMD below 14 m/min, 5 of these subjects were subsequently found to have significant cardiovascular pathology, leaving only two subjects (0.84%) with no evidence of pathology yet an AMD below 14 m/min. In the second part of the study, 50 patients known to have a low cardiac output as defined by a cardiac index of less than

2.3 L/min/m<sup>2</sup> were reviewed to assess the relationship between cardiac index and AMD. In all 50 patients the AMD was found to be below 14 m/min. The ease and speed with which AMD can be measured using the USCOM, typically within 15 seconds, allows for the rapid evaluation of haemodynamics with a high degree of certainty as to the critical value of cardiac index of 2.3 L/min/m<sup>2</sup>. Early goal directed therapy can then be initiated when indicated, and optimised by either repeat measurements of AMD at clinically appropriate intervals, or by formal cardiac output determination using the full features of the USCOM.

#### 7. EMERGENCY PHYSICIANS CAN RELIABLY ASSESS PATIENT CARDIAC OUTPUT USING NON-INVASIVE ULTRASONIC CARDIAC OUTPUT MONITOR (USCOM)

Jenny MY Lam,<sup>1,2</sup> CO Tang,<sup>1,2</sup> MK Tam,<sup>1,2</sup> Colin A Graham,<sup>1,2</sup> Timothy H Rainer<sup>1,2</sup>

<sup>1</sup>Trauma & Emergency Centre, Prince of Wales Hospital; <sup>2</sup>Accident & Emergency Medicine Academic Unit, the Chinese University of Hong Kong, Hong Kong

**Aims:** Cardiac output is important for diagnosing shock and monitoring the response to therapy. USCOM is a new, non-invasive, stand-alone device for measuring cardiac output using Continuous Wave Doppler technology. The aims of this prospective study were firstly to determine the number of proctored studies necessary for skill acquisition, and secondly to evaluate the reliability of USCOM cardiac output assessments in the emergency department.

**Methods:** Two emergency physicians (one had completed the credential training for emergency ultrasound and another was undergoing emergency ultrasound training) from a teaching hospital emergency department underwent one hour of training from an USCOM Ltd. credentialed trainer. Each of them independently performed USCOM cardiac output assessments on a convenience sample of 15 emergency department patients. Records of the acoustic image were reviewed by two independent, accredited trainers using the Freemantle Protocol, using validated six image-scoring criteria (gold standard). Skill acquisition was assessed at the 5th, 10th and 15th examinations. Two trained emergency physicians then each performed blinded protocolised examinations on 44 emergency department patients. Inter-assessor reliability was evaluated.

**Results:** During the training period, the average image score improved from 3.5/6 at the 5th assessment to 4.5/6 at the 10th assessment to 6/6 (maximum possible) at the 15th assessment. Subsequent analysis of 88 cardiac output assessments in 44 emergency department patients (adult patients with a variety of presenting complaints) demonstrated excellent inter-assessor correlation ( $r=0.93$ , 95% CI (0.88-0.96)).

**Conclusion:** Emergency physicians can be trained to obtain reliable cardiac output estimations upon emergency department patients with the USCOM over the course of 15 patient assessments.

#### 8. A PILOT STUDY OF USING ULTRASONOGRAPHY IN ASSESSING PATIENTS PRESENTING WITH RIGHT LOWER QUADRANT PAIN

AYC Siu, CH Chung

Accident & Emergency Department, North District Hospital, Hong Kong

**Introduction:** Acute appendicitis is one of the challenging diagnoses in emergency medicine. Traditional investigation cannot safely rule in or rule out the disease. Contrast computed tomogram is useful but not commonly available in the emergency setting. Ultrasonography (USG) is one of the investigations that are easily assessable in the emergency department and can help to identify the disease. We present our initial result of using USG to evaluate patients suspected to be suffering from acute appendicitis.

**Methods:** Patients presenting with right lower quadrant (RLQ) pain were included. Patients with history of appendectomy, confirmed cases of renal colic or ectopic pregnancy were excluded. USG was done by the investigators using a 7.5 Mz linear probe. A non-compressible appendix of size at least 6 mm in diameter was considered as positive USG result. Other supporting USG signs included localised ileus and collection of intraperitoneal fluid. All patients were admitted and the outcome including the final discharge diagnosis and operative finding was compared with the USG finding in our department.

**Result:** Thirty-seven patients with age ranging from 8 to 81 years (mean: 29.4 years) were recruited from 1/1/2004 to 28/2/2005. Fifteen patients were labelled as positive and ten of them were confirmed to be acute appendicitis. False positive cases included diverticulitis of colon and Meckel's diverticulum. 22 patients were labelled as negative by USG and 5 were finally confirmed to be acute appendicitis. The sensitivity and the specificity were 66.7% and 77.3% respectively. The positive and negative predictive values were 66.7% and 77.3% respectively.

**Conclusion:** USG has a definite role in assessing patients presenting with RLQ pain. However the technique is operator dependent and time-consuming. There are still areas for us to improve the technique to yield a better detection rate.

#### 9. THE USE OF ULTRASONOGRAPHY IN FIRST TRIMESTER PREGNANCY COMPLICATIONS IN THE ACCIDENT AND EMERGENCY DEPARTMENT OF TUEN MUN HOSPITAL

WL Tong

Accident & Emergency Department, Tuen Mun Hospital, Hong Kong

**Objectives:** To obtain a database on the use and accuracy of ultrasonography (USG) of first trimester pregnancy complications of the Accident and Emergency Department (AED) of Tuen Mun Hospital.

**Subjects and methods:** It was a prospective study. The study

period was from 8th August 2005 to 9th September 2005. All medical officers in the AED of Tuen Mun Hospital were asked to fill in a checklist after they had performed USG on patients with first trimester pregnancy complication. Patients without or lost to follow up by gynaecologists of Tuen Mun Hospital were excluded from the study. The checklist was collected immediately after each patient was disposed. All checklists, AED notes, inpatient and outpatient notes were collected and analysed by the author. USG findings by gynaecologists of Tuen Mun Hospital were taken as the reference standard. The accuracy of the USG findings of medical officers of the AED was checked against the computer record or the written record of the Threatened Abortion Clinic by the author.

**Preliminary results:** A total of 258 patients under the specialty "Gynaecology" were seen during the period 8th August to 23rd August 2005. 26% (67 cases) attended for first trimester pregnancy complication. USG was performed on all cases. 64% of them (43 cases) had received USG by medical officers of the AED and subsequently by gynaecologists of Tuen Mun Hospital. The overall accuracy of USG findings of medical officers of the AED was 76.7%, with accuracy of 88.2% and 85.7% in diagnosing patients with viable fetus and ectopic pregnancy respectively. The accuracy of other findings, such as early pregnancy with gestational sac, embryonic structure, complete abortion and embryonic demise ranged from 33.3% to 50%. Fellows and basic trainees attained 100% accuracy. Higher trainees and non-trainees attained accuracy of 70.6% and 64.7% respectively. Medical officers who had attended USG course had accuracy of 100%. We had 7 cases of ectopic pregnancy in this period. 6 of them (85.7%) were diagnosed by medical officers of the AED. It yielded a sensitivity of 71.4%, and specificity of 97%. The positive and negative predictive values were 83.3% and 94.6% respectively. The positive and negative likelihood ratios were 23.8 and 0.29 respectively.

**Conclusions:** Medical officers in AED could make USG diagnosis of viable fetus and ectopic pregnancy with accuracy of 88.2% and 85.7% respectively. Medical officers who had received USG training had more accurate USG diagnosis.

## 10.

### AN AUDIT OF PHYSICIAN-PERFORMED ULTRASONOGRAPHY IN AN URBAN GENERAL HOSPITAL EMERGENCY DEPARTMENT

RTM Wong, HF Ho, CS Pak

Accident & Emergency Department, Queen Elizabeth Hospital, Hong Kong

**Objective:** To determine the pattern of utilisation of emergency department ultrasonography (EDU) and the accuracy of EDU performed by emergency physicians.

**Methods:** Between August 2004 and December 2004, all patients receiving EDU were enrolled. A questionnaire was completed by the attending physician immediately after performing the sonography. Confirmatory tests from this and other hospitals and emergency departments were

reviewed retrospectively.

**Results:** A total of 419 EDU scans were performed. Common indications for EDU were first trimester scans to detect intrauterine pregnancy (38.7%), second and third trimester scans to determine fetal viability (12.2%), abnormal per vaginal bleeding (11.5%), suspected hydronephrosis (9.8%), scans to detect gallstone (6.7%), focused assessment with sonography in trauma (FAST) (3.8%), suspected abdominal aorta aneurysm (AAA) (3.6%), suspected deep vein thrombosis (DVT) (1.9%) and suspected pericardial effusion (1.2%). Less common indications were: liver, renal or pelvic mass, antepartum haemorrhage, jaundice, scrotal pain, suspected superficial abscess and vascular access. Test characteristics of 282 scans with confirmatory test were analysed. The results are reported in brackets in the order: sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV). First trimester pregnancy (94%, 86%, 88%, 93%), second and third trimester (100%, 97%, 92%, 100%), suspected hydronephrosis (100%, 75%, 71%, 100%), suspected gallstone (91%, 20%, 71%, 50%). FAST scans had a specificity of 94% and NPV of 100%. Compression ultrasound for suspected DVT (100%, 50%, 50%, 100%). Echocardiograms to detect pericardial effusion had a sensitivity and PPV of 100%. Scans to detect biliary tract obstruction had a sensitivity and specificity of 75%. Scans to detect uterine abnormalities in patients with abnormal per vaginal bleeding were least accurate (67%, 71%, 75%, 62.5%). Overall, EDU had a sensitivity of 92%, specificity of 83%, accuracy of 87%, PPV of 83% and NPV of 92%.

**Conclusion:** Focused ultrasound can be successfully performed by non-radiologists within a Hong Kong accident and emergency training system. It is a sensitive and specific adjunct to patient assessment. Biliary tract scans and pelvic ultrasound in non-pregnant female patients had least satisfactory results. Although EDU can be used in a wide variety of clinical conditions, the physician-sonographer needs to be aware of the limitations of EDU as well as his/her own capabilities. A system incorporating audit, accreditation and education is essential.

## Free papers

### Session F3: Cardiovascular

## 11.

### IS 3-SERIAL-TROPONIN TEST BETTER THAN 2-SERIAL-TROPONIN TEST IN DISCHARGING CHEST PAIN PATIENTS FROM THE ACCIDENT AND EMERGENCY DEPARTMENT? A RETROSPECTIVE STUDY

Stephen CS Chan

Accident & Emergency Department, Queen Elizabeth Hospital, Hong Kong

**Objective:** To assess whether 3-serial-troponin test (3cTnT) is better than 2-serial-troponin test (2cTnT) in discharging chest pain patients from the Accident & Emergency

Department (AED).

**Design:** Retrospective observational study.

**Setting:** Observation ward of an AED. Study population: Low risk stratification AED chest pain patients. Intervention: Serial ECG and cTnT in diagnosing acute myocardial infarction (AMI) or acute coronary syndrome (ACS) in AED.

**Main outcome measure:** Adverse cardiac events at 30 days by AED (AEIS) and hospital (CMS) database record search.

**Inclusion criteria:** All low risk chest pain patients were included in the study. Patients were excluded if the ECG was consistent with ischaemia, the first cTnT was >0.1 mcg/L or there was an obvious alternative cause of chest pain.

**Study protocol:** There were two protocols – 6-hour protocol (2cTnT) and 12-hour protocol (3cTnT) – in the study period to be decided by the attending doctor. Low risk patients were admitted into the observation ward and assigned one of the protocols consisting of serial ECG and cTnT. If the ECG changed or the cTnT was positive, the patient would be admitted into the medical ward. The remaining patients were then discharged if the diagnosis was apparent after observation.

**Outcome measures:** The patients under study were followed up over the following 30 days to find out any cardiac events by AEIS and CMS record search.

**Results:** A total of 343 patients were recruited. The cTnT showed high specificity (100%) in diagnosing AMI and ACS. Both groups showed similar AED re-attendance rate ( $P=0.227$ ) and cardiac admission rate ( $P=0.376$ ). No patient re-attended or was subsequently admitted for AMI or ACS. All patients survived after treatment.

**Conclusion:** Cardiac troponin T is a good diagnostic tool for evaluating patients with chest pain in the observation ward. The 2-serial-troponin test was as effective as the 3-serial-troponin test in AED patient discharge.

## 12.

### A RETROSPECTIVE REVIEW OF FACTORS ASSOCIATED WITH DELAY OF DOOR TO NEEDLE TIME FOR THROMBOLYSIS IN ACUTE MYOCARDIAL INFARCTION

CH Choy, CY Hung

Accident & Emergency Department, Tuen Mun Hospital, Hong Kong

**Study objective:** Many clinical trials showed the importance of rapid reperfusion in acute myocardial infarction (AMI). Our objective was to determine the factors associated with delay of door-to-needle time (DTNT) for thrombolysis in AMI.

**Materials and methods:** We retrospectively analysed the medical records of all patients in Tuen Mun Hospital who were diagnosed AMI and received streptokinase in the Emergency Department from January 1, 2003 to February 28, 2005. The time interval of each management step was recorded. Records of those patients with DTNT exceeding 60 minutes were examined to determine the causes of treatment delay.

**Results:** Out of 123 AMI patients who received streptokinase, the mean and median door-to-needle times were 44 and 38 minutes respectively. Of the 21 patients (17.1%) with delayed DTNT, 17 had consultation before ECG and 4 cases had ECG before consultation. The most common causes of delay of DTNT included delay in obtaining initial ECG (19%), delay in ECG interpretation (19%) and atypical presentation (19%). Other causes included the need to rule out a possible contraindication to thrombolysis (14.3%), need to repeat ECG (9.5%), delay in triage (9.5%) and delay in decision to give drug (4.8%). However, 4.8% of the cases had no clear reason for delay.

**Conclusion:** ECG should be considered as part of vital signs in patients with chest pain and should be interpreted immediately by trained staff. We should also beware of atypical symptoms, and put effort to minimise delay in reperfusion therapy.

## 13.

### CLINICAL EFFICACY OF COMBINING WELLS' CLINICAL CRITERIA AND VIDAS D-DIMER ASSAY TO EXCLUDE LOWER LIMB DEEP VEIN THROMBOSIS IN THE LOCAL CHINESE POPULATION IN AN EMERGENCY DEPARTMENT

SP Wu, CP Yuen, HF Ho

Accident & Emergency Department, Queen Elizabeth Hospital, Hong Kong

**Background:** Compression ultrasonography is reliable for the diagnosis of lower limb deep vein thrombosis (DVT) in symptomatic patients, but the low prevalence of thrombosis in our population renders this approach costly and inconvenient to patients.

**Objective:** To assess the validity of the Wells' clinical model combined with bedside VIDAS D-dimer assay in safely excluding lower limb DVT in the emergency department.

**Methods:** Chinese patients suspected to have lower limb DVT were assessed using Wells' clinical model and risk stratification. VIDAS D-dimer estimations were then performed (normal <500 ng/ml) and compression ultrasonography arranged. The pre-test probabilities of DVT in low, moderate, and high-risk groups were estimated. The sensitivity, specificity, and predictive values of the VIDAS D-dimer assay were calculated for the patient population. A second ultrasonography would be performed one week later for patients who had initial negative scan.

**Results:** A total of 24 patients were recruited in two months. Application of Wells' criteria permitted stratification into high, moderate, and low risk groups (calculated prevalence of DVT 75%, 26%, and 0% respectively). VIDAS D-dimer assay sensitivity was 100%, with specificity of 23%, a positive predictive value of 41% and a negative predictive value of 100%. Five patients had a normal VIDAS D-dimer concentration and a non-high pre-test probability, none of them developed DVT during follow-up. Fifteen patients had abnormal VIDAS D-dimer concentration and non-high pre-test probability; four (26%) developed DVT. No death due to thromboembolism occurred during follow-up.

**Conclusion:** The preliminary results showed that the combination of non-high Wells' pre-test probability score with normal VIDAS D-dimer concentration can safely rule out deep vein thrombosis in Chinese patients and reduce ultrasonography utilisation and medical admission. In order to confirm this observation, we currently continue recruiting patients and more data will be available for further evaluation.

14.  
**A PILOT STUDY TO COMPARE EFFICACY OF VASOPRESSIN AND ADRENALINE IN CARDIOPULMONARY RESUSCITATION OF CHINESE PATIENTS IN THE ACCIDENT & EMERGENCY DEPARTMENT OF A REGIONAL HOSPITAL IN HONG KONG**

Anfernee KM Yim, CW Chau, Eddie Yuen, HF Ho  
Accident & Emergency Department, Queen Elizabeth Hospital, Hong Kong

**Background:** Many animal and overseas clinical studies suggested the potential benefit of vasopressin in cardiopulmonary resuscitation. This pilot study attempted to examine its efficacy in our local Chinese, in view of differences in pharmaco-dynamics, pharmaco-kinetics and genetic make-up.

**Methods:** Local Chinese adults with out-of-hospital cardiac arrest were randomly assigned to receive either 40 IU vasopressin or 1 mg adrenaline. Subsequent management adhered strictly to the Advanced Cardiac Life Support guideline published by the American Heart Association. The primary outcome was restoration of spontaneous circulation and the secondary outcome was survival to hospital discharge.

**Results:** A total of 40 patients were recruited from 1st January 2005 to 4th August 2005. 20 were assigned to receive vasopressin and 20 to receive adrenaline. For the background demographic data, there were more patients with ischaemic heart disease being assigned to the vasopressin group ( $p=0.018$ ) and more patients in the adrenaline group received sodium bicarbonate ( $p=0.037$ ). Otherwise the two groups were comparable. Both our primary and secondary outcomes were not statistically significantly different. No complaints were received from the relatives concerning our study. In this pilot study, we noticed some interesting findings. When compared with other overseas clinical studies, we had relatively more patients with initial rhythm of pulseless electrical activity [PEA] (52.5%). For those PEA patients treated with adrenaline, more survived to be admitted ( $p=0.044$ ). However a larger sample is required to prove or disprove this tendency.

**Conclusion:** This pilot study demonstrated the possibility and feasibility of carrying out a study involving resuscitation in Hong Kong though we could not prove the efficacy of vasopressin in cardiopulmonary resuscitation for the local Chinese population at the present moment. However, as our samples were far behind the calculated figure, a multi-centred co-operation would be a good idea to assess its real efficacy.

15.  
**THE EFFECTIVENESS OF GINKGO BILOBA ON ACUTE MOUNTAIN SICKNESS: A CONTROL STUDY**

Willis WH Kwok  
Accident & Emergency Department, Yan Chai Hospital, Hong Kong

This trial was designed to determine if ginkgo is an effective prophylactic agent in acute mountain sickness (AMS) if begun 3 days prior to ascent. In this double-blind, randomised, placebo-controlled trial, 22 participants with permanent residence at sea level were receiving ginkgo biloba extract (120 mg) or placebo at Solang, India (2640 m). The subjects then climbed up to Friendship Peak (5289 m) over the next six days. The Lake Louise Self-report Questionnaire and pulse oximetry constituted the primary outcome measures at various daily heights reached. AMS was defined as a Lake Louise Self-report Score (LLSR) of 3 with headache. Subjects who developed severe AMS were promptly treated and transported to a lower altitude for the remainder of the study. No subject was found to have symptoms of AMS. There was no difference amongst the two treatment groups.

**Free papers**  
**Session F4: Miscellaneous**

16.  
**EMERGENCY PRESENTATION OF FRACTURED PENIS – A LOCAL CASE SERIES**

CH Chung, KK Lai  
Accident & Emergency Department, North District Hospital, Hong Kong

**Introduction:** Penile fracture is an uncommon urological emergency that may have devastating physical, functional and psychological consequences. In the Far East, it has only been reported in Japan, Taiwan and Singapore. As prompt diagnosis and expeditious surgical repair are vital for a good outcome, a retrospective study was carried out in the emergency department of a general hospital to examine the epidemiology and presentation characteristics of the local population.

**Methods:** For a seven-year period from August 1998 to August 2005, patients admitted through the Accident & Emergency Department of North District Hospital with a discharge diagnosis of "fractured penis" were retrieved from the hospital computer database. The age, time of attendance, cause, symptoms, signs, emergency department diagnosis, operative findings and final outcome of the patients were analysed descriptively.

**Results:** A total of nine patients were recruited. As the North District Hospital serves a population of around 300,000, the annual incidence was 0.43 per 100,000. The mean age was 43 years (range 30-63). All except one presented in the morning, the latter having to travel back from Mainland China. The time interval between incident and presentation

ranged from 17 minutes to 7 days. Five (56%) were due to sexual intercourse, 3 (33%) were due to penile manipulation, and 1 (11%) was due to rolling over the erect penis during sleep. Four (44%) reported a cracking sound. All had swelling of the penis. All but one (89%) had ecchymosis and pain. Six (67%) had penile angulation. Two (22%) had urethral bleeding and one (11%) had gross haematuria. The two patients with urethral bleeding also had voiding difficulties and required urethroplasty. The emergency department diagnosis was penile fracture in 8 (89%) and paraphimosis in 1 (11%). All but one had repair done, the latter discharged against medical advice. At follow-up, two patients (22%) had erectile dysfunction, one had mild penile deformity and one had mild urethral stricture.

**Conclusion:** Penile fracture may be an under-reported trauma emergency. Emergency physicians should be familiar with its presentation characteristics, as prompt diagnosis and early surgical repair are instrumental in ensuring an excellent outcome with minimal complications. The public should also be educated to seek medical attention immediately, as delay or failure to report may result in avoidable permanent physical and psychological disabilities.

#### 17.

##### EVALUATION OF CLINICAL FACTORS AFFECTING THE DIAGNOSIS OF ACUTE APPENDICITIS

F Yu, TW Wong, CC Lau

Accident & Emergency Department, Pamela Youde Nethersole Eastern Hospital, Hong Kong

**Objective:** Acute appendicitis is one of the most common surgical emergencies encountered in the emergency department. However, missed diagnosis is still not uncommon. This study was conducted to evaluate the pre-operative clinical parameters of patients with acute appendicitis, which could not be diagnosed in the emergency department.

**Patients and method:** This was a retrospective study and all patients, who were admitted to Pamela Youde Nethersole Eastern Hospital from May 2001 to May 2003 with histologically confirmed acute appendicitis, were recruited. Patients were categorised into three groups according to the diagnoses made at the emergency department, namely, (i) valid diagnosis of acute appendicitis (Control group), (ii) wrong diagnosis (WDx) and (iii) uncertain diagnosis (UDx), which was defined as those patients admitted with the diagnosis of right lower quadrant pain without any peritonism. The latter two groups (study groups) were compared with the control group and the clinical parameter measures being evaluated included demographic data, presenting symptoms, physical examination and white cell counts.

**Results:** Three hundred and fifty-two patients were recruited into the study (Control: 218, WDx: 44, UDx: 90). They were comparable in terms of gender distribution and physical status scale of the American Society of Anaesthesiologists (ASA). However, age was statistically higher in patients with uncertain diagnoses (Control:  $34.7 \pm 13.3$ , UDx:  $38.8 \pm$

16.3,  $p=0.04$ ). The wrong diagnoses made at the emergency department included epigastric or non-specific pain (27), gastroenteritis (10), pelvic inflammatory disease (3), urinary tract infection (1), pyelonephritis (1), ovarian cyst complication (1) and intestinal obstruction (1). There were significantly fewer patients presenting only with right lower quadrant pain in the wrong diagnosis group (Control: 191/218, WDx: 22/44,  $p=0.01$ ). On the contrary, there were more patients in the uncertain group complaining of anorexia (Control: 73/218, UDx: 41/89,  $p=0.04$ ) and vomiting (Control: 40/218, UDx: 32/89,  $p=0.001$ ). No significant difference in white cell counts and physical findings could be demonstrated except epigastric tenderness, which was more commonly detected in patients with wrong diagnoses (Control: 0/217, WDx: 3/44,  $p<0.01$ ). Seniority of emergency physicians was shown to have affected the accuracy of diagnosis ( $p=0.02$ ). The probability of making the correct diagnosis was 1.35 and 1.46 times more likely when the physician was a specialist as opposed to non-trainee and basic trainee respectively.

**Conclusion:** Experience of the physician is still the key factor affecting the correct diagnosis of acute appendicitis.

#### 18.

##### COMPARISON OF ORAL PREDNISOLONE AND ORAL INDOMETHACIN IN THE TREATMENT OF ACUTE GOUT: A DOUBLE-BLIND, RANDOMISED, CONTROLLED TRIAL

CY Man, Ian TF Cheung, Peter A Cameron, Timothy H Rainer

Accident & Emergency Medicine Academic Unit, Prince of Wales Hospital, Hong Kong

**Objectives:** To compare the analgesic efficacy and adverse effects of oral prednisolone and oral indomethacin in the treatment of acute gout in an emergency department.

**Design:** Double-blind, randomised, controlled study.

**Setting:** Emergency department of a university hospital in the New Territories of Hong Kong.

**Subjects:** 90 adult patients with a clinical diagnosis of acute gout.

**Methods:** Consecutive patients age >17 years presenting between 1 February 2003 and 30 June 2004 with a clinical probability of gout were randomised to receive either oral prednisolone or oral indomethacin. Primary outcome measures were pain scores, time to resolution of symptoms/signs and adverse effects of the treatment. Secondary outcome measures were need for additional paracetamol, extended stay in observation ward and relapse rate.

**Results:** 90 patients were randomised into the study: 46 patients to the indomethacin group and 44 patients to the prednisolone group. Baseline characteristics including the pain scores prior to treatment were similar in the two groups. Both treatment groups had similar decrease in pain score at all time points. Patients in the steroid group consumed more paracetamol than the NSAID group ( $p<0.05$ ). Twenty-nine patients in the NSAID group and 12 patients in the steroid group experienced adverse effects ( $p<0.05$ ). The commonest

side effects in the NSAID group were nausea, indigestion, epigastric pain, dizziness and gastrointestinal bleeding (N=5, 11%). None of the patients in the steroid group developed gastrointestinal bleeding (0%). The relapse rates for both treatment groups were similar.

**Conclusion:** In the treatment of acute gout, oral prednisolone combined with paracetamol is as effective as indomethacin in relieving pain but is associated with less adverse effects.

#### 19.

#### A RANDOMISED TRIAL TO COMPARE THE EFFICACY OF CIPROFLOXACIN AND NITROFURANTOIN FOR THE TREATMENT OF UNCOMPLICATED URINARY TRACT INFECTION IN WOMEN

H Chan, FL Lau, SM Ting

Accident & Emergency Department, United Christian Hospital, Hong Kong

**Purpose:** Urinary tract infection (UTI) is a common disease among women. Recent microbiological reports show that the bacterial resistance for *Escherichia coli*, which is the commonest urinary microbe, has been increasing over recent years to traditional antibiotics like trimethoprim-sulphamethoxazole and quinolones; while nitrofurantoin seems to be still effective in treating UTI. In addition, short-course (3-day) antimicrobial treatment has been shown to be effective for UTI. This study compared the efficacy of short-course ciprofloxacin and nitrofurantoin therapy in treating uncomplicated UTI in women.

**Methods:** Women aged between 18-55 years with uncomplicated UTI clinically were randomised to receive 3-day ciprofloxacin or nitrofurantoin therapy. After treatment, the patients were contacted via telephone to assess their clinical response and adverse side effects.

**Results:** Up till late August 2005, a total of 40 patients were evaluated (21 treated with ciprofloxacin, 19 treated with nitrofurantoin). The most commonly isolated pathogen was *Escherichia coli*. All patients completed the treatment course. Clinical resolution of symptoms after two weeks occurred in 95% of ciprofloxacin and 94% of nitrofurantoin-treated patients. Adverse effects were mild and occurred in 33% of the ciprofloxacin and 42% of the nitrofurantoin-treated subjects.

**Conclusions:** The preliminary results showed that ciprofloxacin and nitrofurantoin had similar efficacy when given for 3 days to treat acute and uncomplicated UTI. Nitrofurantoin is inexpensive (HK\$0.099/tablet) and remains as an alternative to treat UTI.

#### 20.

#### IS PLAIN ABDOMINAL X-RAY USEFUL IN DIAGNOSING INTUSSUSCEPTION IN CHILDREN WITH ACUTE ABDOMINAL PAIN PRESENTING TO EMERGENCY DOCTORS?

OF Wong

Accident & Emergency Department, Tuen Mun Hospital, Hong Kong

The aim of the study was to investigate whether emergency department (ED) doctors were able to find out the radiological features of intussusception in paediatric patients and make the diagnosis accurately. Nine ED doctors with different clinical experience and a senior radiologist from Tuen Mun Hospital were recruited to evaluate 29 abdominal X-ray (AXR) films in which 19 were confirmed intussusception by ultrasonogram with subsequent air or barium enema and 10 gastroenteritis cases were chosen as control. All doctors were blinded to the diagnoses of the patients. The radiological features of intussusception were reported. They made a radiological diagnosis either 'supportive' or 'not supportive' to the diagnosis of intussusception after evaluating the AXR films. The radiologist's findings were taken as the reference standard. For the results of the radiologist, the sensitivity, specificity and accuracy for making diagnosis from AXR were 47%, 100% and 65.5% respectively. By using the kappa statistical method, the results of emergency doctors had a large discrepancy compared with that of the radiologist. The kappa values of emergency specialists, part 2 holders and junior doctors (pre-part 1) ranged from -0.1 to 0.28, 0 to 0.14 and 0.03 to 0.27 respectively. Junior doctors were not familiar with the crescent sign. Within the limits of the study, it is concluded that AXR is not useful for emergency doctors to rule in or rule out intussusception. Correlation with the clinical signs and symptoms is essential.

#### 21.

#### ARE PREHOSPITAL VITAL SIGNS USEFUL PREDICTORS OF TRAUMA SURVIVAL IN HONG KONG?

Janice HH Yeung,<sup>1</sup> Colin A Graham,<sup>2</sup> NK Cheung,<sup>1</sup> HL Lau,<sup>3</sup> SW Kwok,<sup>4</sup> WK Woo,<sup>1</sup> Timothy H Rainer<sup>2</sup>

<sup>1</sup>Trauma & Emergency Centre, Prince of Wales Hospital; <sup>2</sup>Accident & Emergency Medicine Academic Unit, the Chinese University of Hong Kong; <sup>3</sup>Accident & Emergency Department, Alice Ho Miu Ling Nethersole Hospital; <sup>4</sup>Head Office, Hospital Authority, Hong Kong

**Aim:** Current recommendations emphasise that the earliest possible physiological data recorded after trauma be used for predicting survival, yet rapid scene assessment and effective prehospital (PH) resuscitation may render significant differences between PH data compared with early emergency data (ED) data. The aim of this study was to determine whether PH data predicted mortality better than ED data, and to evaluate the relationship between prehospital times and mortality.

**Methods:** Retrospective study using data collected prospectively between January 2001 and February 2005 for trauma registry data from an academic trauma centre in Hong Kong. Patients who died before arrival at the ED were excluded.

**Analysis:** Mann-Whitney U, Spearman's rank correlation and stepwise multivariate logistic regression.

**Results:** 2,033 patients (mean age 40 years, SD21; 70% male; 94% blunt trauma) were included. Motor vehicle/bicycle crashes accounted for 980 (48%) and falls for 569 (28%) cases. 126 (6%) patients died. The table shows univariate comparison of predictors. Ambulances arrived at the patient's side within 12 minutes in 89% of cases. At scene times were short especially in those patients who died. There was a weak positive correlation between PH systolic blood pressure (SBP) and ED SBP ( $\rho=0.531$ ,  $p<0.0001$ ), poor correlation between PH respiratory rate (RR) and ED RR ( $\rho=0.211$ ,  $p<0.0001$ ), but a strong correlation between PH Glasgow Coma Scale (GCS) and ED GCS ( $\rho=0.832$ ,  $p<0.0001$ ). Regression analysis showed that prolonged call to scene time, higher ISS, greater age, lower ED GCS and shorter time at the patient's side in the field were independent predictors of fatal outcome.

**Conclusion:** PH-GCS was the only prehospital predictor of survival, but ED-GCS was more predictive. Ambulance response and at scene times were appropriate.

**Table.** Relationship between mortality, age, ISS and prehospital and emergency department assessments\*

Variable	Survived	Died	P value
Age – years	38 (24, 50)	64 (38, 80)	<0.0001
ISS	5 (2, 14)	26 (25, 43)	<0.0001
PH SBP – mmHg	128 (114, 145)	133 (99, 160)	0.6022
ED SBP – mmHg	135 (120, 153)	135 (80, 177)	0.3903
PH RR – per minute	20 (20, 24)	20 (17, 24)	0.8829
ED RR – per minute	20 (18, 24)	18 (0, 24)	<0.0001
PH GCS	15 (15, 15)	9 (3, 15)	<0.0001
ED GCS	15 (15, 15)	6 (3, 14)	<0.0001

\* Values are medians (IQR)

## 22.

### SHOULD EMERGENCY PHYSICIANS USE XYLOCAINE SPRAY TO EASE NASOGASTRIC TUBE INSERTION AND PREVENT COMPLICATION? A PROSPECTIVE, DOUBLE BLINDED, RANDOMISED CONTROL TRIAL IN A REGIONAL HOSPITAL IN HONG KONG

CP Chan,<sup>1</sup> HF Ho,<sup>1</sup> FL Lau<sup>2</sup>

<sup>1</sup>Accident & Emergency Department, Queen Elizabeth Hospital; <sup>2</sup>Accident & Emergency Department, United Christian Hospital, Hong Kong

**Objectives:** This study was conducted to examine the efficacy and safety of xylocaine spray as an analgesic agent for nasogastric tube insertion in adults in the emergency department.

**Design:** This was a prospective, double blinded, randomised, placebo-controlled study.

**Setting:** Emergency Department of Queen Elizabeth Hospital, Hong Kong.

**Materials and methods:** All patients presenting with conditions requiring nasogastric tube insertion and fulfilling the inclusion criteria were enrolled. Primary outcome measures were procedure time, patient discomfort perception using visual analogue scale (VAS), Likert scale score of insertion difficulty, number of insertions, adverse events and final success or failure.

**Results:** From 30 May 2005 to 15 August 2005, altogether 131 patients were recruited. Their mean age was 61.4 years. Of them, 69 patients (52.7%) received placebo (normal saline spray) and 62 patients (47.3%) received xylocaine spray. The average VAS was 8.1 cm for the placebo group and 2.4 cm for the xylocaine group. The majority of Likert scale score was "moderate" for the placebo group and "slight" for the xylocaine group. The average procedure time was 4.2 min for the placebo group and 2.3 min for the xylocaine group. Patients who received placebo experienced more frequent complications of chest pain (2% vs 0%), epigastric pain (3.8% vs 0%), vomiting (30% vs 2%), shortness of breath (15% vs 0%), epistaxis (8% vs 1.5%) and facial petechiae (3% vs 0%) than those in the xylocaine group. No inadvertent tracheal placement was noted in both groups. Seven patients (5% overall) who received placebo required more than two attempts for nasogastric tube insertion. All patients in the xylocaine group required only one or two attempts of insertion. Insertion of nasogastric tube failed in 4 patients of the placebo group (3% overall) eventually but all insertion was successful in the xylocaine group.

**Conclusions:** The use of xylocaine spray, compared to placebo application, was associated with significantly shorter procedure time, much less patient discomfort, easier insertion and reduced adverse events or failure rate. Xylocaine spray is an effective and safe analgesic for adult patients requiring nasogastric tube insertion in the emergency department.

## 23.

### A CASE-CONTROL STUDY OF THE UTILISATION OF EMERGENCY SERVICE BY PATIENTS PRESENTING WITH DELIBERATE SELF-HARM

HH Chan, TW Wong, CC Lau

Accident & Emergency Department, Pamela Youde Nethersole Eastern Hospital, Hong Kong

**Background:** The characteristics of patients presenting to the emergency department for deliberate self-harm is a relatively neglected area of research locally.

**Aims:** To provide epidemiological data on patients presenting with deliberate self-harm as well as to study the pattern of emergency service utilisation by these patients in the preceding one year.

**Methods:** This was a retrospective case-control study. Cases were selected from the CDARS patient database by searching the diagnosis codings with "suicide" and "self-inflicted injury or poisoning" that required admission to Pamela Youde Nethersole Eastern Hospital (PYNEH) in the second half

of 2002. Details of the cases were retrieved from the CMS (hospital) and AEIS (emergency department) computer database system of PYNEH. Controls which were matched with the cases by age, sex, race, type of accommodation, pay-code and date of emergency department attendance were randomly selected from the AEIS system. The numbers of attendance within the preceding year for cases and controls were identified after searching the PYNEH computer database. The frequencies of attendance were compared with Chi-square and Mann-Whitney U tests.

**Results:** There were 130 cases and 130 controls in the study. Seventy percent of cases were female. Self-poisoning was the most common method of self-harm, in which hypnotics was the most common poison. Fifty percent (65 of 130) of cases vs. 41.5% (54 of 130) of controls had attended the emergency department in the preceding year but the difference was not statistically significant (Chi-square test  $p < 0.2$ ). There was also no statistically significant difference in the average number of attendance between the two groups

(Mann-Whitney U test  $p < 0.15$ ). However, on average, cases had more previous attendances related to cardiovascular (e.g. non-specific chest pain, palpitation) and emotional complaints than controls (Mann-Whitney U test,  $p < 0.05$ ). There were significantly more cases with past history of psychiatric illness or self-harm than controls (Fisher-exact test  $p < 0.05$ ). The odds ratio of pre-existing psychiatric illnesses as a risk factor for self-harm is 28.2 (95% CI 8.5-93.5), among which, depression, schizophrenia and adjustment disorder were the most common. The odds ratio of self-harm or self-poisoning history as a risk factor was 43 (95% CI 5.8-326). Of the 65 cases with history of attendance in the preceding one year, 14 (22%) had an immediate past attendance due to self-poisoning.

**Conclusions:** Patients presenting with deliberate self-harm did not have more frequent attendance in the emergency department than controls in the preceding year overall. Cases did present more frequently with non-specific chest symptoms, emotional and psychiatric problems.

---

## Posters

1.

### A 5-YEAR REVIEW OF ESCORTED INTERHOSPITAL TRANSFER OF OBSTETRIC PATIENTS

CY Chan, LLY Lee, SYH Tang, JTS Chan  
Accident & Emergency Department, Alice Ho Miu Ling Nethersole Hospital, Hong Kong

**Aims:** Indications for secondary maternal transfer from the Accident and Emergency Department (AED) of Alice Ho Miu Ling Nethersole Hospital (AHNH) included term labour, preterm labour, premature rupture of membrane, third-trimester bleeding, antepartum haemorrhage and other medical complications such as pre-eclampsia or eclampsia. The physician in charge decided a transfer if the medical benefit expected from the treatment received at the tertiary hospital outweighed the risk during the transfer posed to the mother and unborn baby. Regarding our usual practice on interhospital transfer, the decision was made by individual doctors subjectively. We therefore reviewed all obstetric patients who were escorted to the Prince of Wales Hospital (PWH), a tertiary centre for obstetric cases, between year 2000 and 2004.

**Methods:** This was a retrospective review of all escorted secondary transfer of obstetric patients from AHNH AED to the PWH from January 1, 2000 to December 31, 2004. Medical records were retrieved from AHNH AED, PWH AED and Obstetrics and Gynaecology Department. Data analysed included patients' demographic variables, cervical dilatation, gravida, parity, gestation week of pregnancy, transfer time, outcomes and complications.

**Results:** During the 5-year study period, 39 pregnant women were transported from AHNH to PWH. Eleven cases (28%) presented before term and 28 cases (72%) presented post-term. Eleven women (28%) were nulliparous and 28 (72%) were multiparous. At AHNH, the mean cervical dilatation

was 3.84 cm and the mean cervical dilatation was increased to 6.63 cm when the patients arrived at PWH ( $p < 0.05$ ). Eight cases (21%) delivered between 0 to 10 min after arrival at the receiving hospital, 5 cases (13%) between 11 to 30 min, 5 cases (13%) between 31 to 60 min, 10 cases (26%) between 61 to 120 min and 8 (21%) cases took more than 2 hours. Four women (10%) were delivered at the PWH emergency department and 32 women (82%) were delivered at the labour ward in PWH. The mean transport time from AHNH to PWH was 20.95 min. The shortest was 10 min and the longest reached up to 41 min. Among these 39 cases, 36 (92%) of them were labour cases and the rest included second trimester miscarriage, antepartum haemorrhage and intrauterine death.

**Conclusion:** It is better to have a midwife or an emergency physician to escort the case with advanced cervical dilatation as there may be significant change in cervical dilatation during the interhospital transfer of obstetric patients from AHNH to PWH, in order to maximise safety for the mother and fetus to provide the best outcome. As most cases (82%) were delivered at the labour ward in the tertiary centre, this study supports the concept that maternal transport can be accomplished safely despite advanced cervical dilatation.

2.

### THE EPIDEMIOLOGY OF PATIENTS WITH DIZZINESS IN AN EMERGENCY DEPARTMENT

Jenny MY Lam,<sup>1,2</sup> Anna YL Tsang,<sup>2</sup> Holly MS Chan,<sup>1</sup> Colin A Graham,<sup>1,2</sup> Timothy H Rainer<sup>1,2</sup>

<sup>1</sup>Trauma & Emergency Centre, Prince of Wales Hospital; <sup>2</sup>Accident & Emergency Medicine Academic Unit, the Chinese University of Hong Kong, Hong Kong

**Aim:** Dizziness is a commonly encountered complaint in the emergency department (ED). It is difficult to define and challenging to diagnose. The aims of this prospective study

were (1) to describe the incidence, patterns of presentation, causes and outcome of ED patients presenting with dizziness to Prince of Wales Hospital, a university teaching hospital in Hong Kong and (2) to identify the predictors of central neurological causes of dizziness.

**Methods:** All consecutive patients ( $\geq 18$  years old) attending the ED with a chief complaint of dizziness were included from 24 May to 24 June 2004. Demographic characteristics, presenting complaints, symptoms, past medical illnesses, physical findings, provisional diagnosis and mode of disposition were recorded by emergency physicians. Computerised hospital records and radiological reports (e.g. CT brain) were reviewed and telephone interviews were conducted for all patients three months after discharge to evaluate outcome.

**Results:** 456 consecutive adult patients with dizziness were recruited. The incidence of dizziness was 4% (456/11319). 292 (64%) were females, and the mean age was 56.8 years. Light-headedness (63%) and vertigo (33%) were the most frequent complaints. Nausea/vomiting (44%) and raised blood pressure (19%) were the commonest associated symptom and positive physical finding respectively. Hypertension (33%) was the commonest past medical illness. 34 (7%) had central neurological causes. 82% were discharged from the ED. Age  $\geq 65$  years, altered mental state, presence of focal neurological sign or symptom or carotid bruits, history of hypertension, diabetes mellitus, ischaemic heart disease and stroke were potential predictors of central causes of dizziness ( $p < 0.05$ ).

**Conclusions:** Most dizzy patients had benign causes and were discharged from the ED. Only 7% had central neurological causes. Age  $\geq 65$  years, altered mental state, focal neurological sign and symptom, presence of carotid bruits, history of hypertension, diabetes mellitus, ischaemic heart disease and stroke were factors that favoured a diagnosis of central neurological cause of dizziness.

### 3.

#### **PULSE OXIMETRY: A SURVEY ON STAFF'S KNOWLEDGE IN AN EMERGENCY DEPARTMENT**

LLY Lee, KL Yeung, WYL Lo, JTS Chan  
Accident & Emergency Department, Alice Ho Miu Ling Nethersole Hospital, Hong Kong

**Introduction:** Pulse oximetry measures arterial oxygen saturation and has been introduced into the clinical field since the 1980s. It provides a simple, portable, non-invasive and inexpensive way for patient monitoring. Previous studies demonstrated that most hospital staff had an unsatisfactory level of understanding on pulse oximetry and we therefore conducted this survey.

**Objective:** The objective of this study was to evaluate knowledge about pulse oximetry among staff of a local emergency department.

**Method:** 25-item multiple-choice questionnaires were given to medical and nursing staff of the Accident and Emergency Department (AED) of Alice Ho Miu Ling Nethersole Hospital (AHNH). In addition to demographic information,

the questionnaires consisted of 7 questions to test respondents' knowledge on the theoretical concept behind pulse oximetry, 14 questions relating to the limitations and inaccuracies of pulse oximetry and 4 questions based on relevant hypothetical scenarios. The questionnaires were assessed by one of the researchers with the scores calculated and expressed on a scale of 0-100.

**Results:** 44 questionnaires were completed by 27 nurses and 17 doctors with their test scores ranging from 20 to 72 (median = 46). Doctors did better than nursing staff in general ( $P=0.029$ ) that included both the theory questions ( $P=0.062$ ; difference in median = 4) and questions relating to limitations and inaccuracies of pulse oximetry ( $P=0.078$ ; difference in median = 8). This advantage however did not apply to questions based on hypothetical scenarios and nurses performed better on the contrary. Correlation analysis proved that there was no linear relationship between respondents' test scores and their years of clinical experience ( $r_s=0.1902$ ). This absence of linear relationship between scores and clinical experience also applied to the doctor ( $r_s=0.2438$ ) and nurse groups ( $r_s=0.1621$ ).

**Conclusion:** There was insufficient knowledge relating to the theory, limitations, inaccuracies and clinical application of pulse oximetry among staff of the emergency department. This study also proved that staff's level of understanding did not relate to their clinical experience. In view of this insufficiency and absence of natural growth of knowledge, training programs are recommended to enhance the education of AED staff. The training should target at both the fresh and experienced staff and this can be achieved by structured orientation programs and regular refresher workshops.

### 4.

#### **THE USE OF RAPID URINE SCREENING TEST FOR DRUGS OF ABUSE IN THE EMERGENCY DEPARTMENT: ITS DIAGNOSTIC ACCURACY AND IMPACT ON PATIENT MANAGEMENT**

WK Lo,<sup>1</sup> SH Tsui,<sup>1</sup> Joseph SK Lee,<sup>2</sup> Sidney CF Tam<sup>2</sup>

<sup>1</sup>Accident & Emergency Department, Queen Mary Hospital; <sup>2</sup>Clinical Biochemistry Department, Queen Mary Hospital, Hong Kong

**Objective:** To study the diagnostic accuracy and impact on patient management of a rapid urine screening test in an emergency department.

**Design:** Prospective clinical trial.

**Setting:** An emergency department of a university hospital.

**Samples:** Patients aged between 15 to 70, who were suspected of suffering from drug toxicity of the eight groups of drugs tested by Triage® Drugs of Abuse Panel, but lacking a clear-cut history.

**Intervention:** Urine samples were obtained for the test and sent to the Clinical Biochemistry Laboratory at the same time. Blood samples were also sent to the laboratory. Questions regarding the diagnosis and management plan were answered by the physician in charge before and after the test.

**Chief outcome measures:** Changes in diagnosis and management, sensitivity and specificity compared with the laboratory toxicology screening result.

**Results:** 50 patients were recruited. The diagnosis of drug overdose of 1 patient made by the emergency physician was altered after the test. The diagnoses were confirmed in 26 patients while in 23 patients, the diagnoses made prior to the test were not altered despite the results had not confirmed the initial suspicion. The screening test result changed the management in 5 patients. The sensitivity and specificity of the test in clinical use were 63% and 89% respectively.

**Conclusion:** The toxicology screening kit is not as sensitive and specific as claimed when used clinically. Diagnosis and management of drug overdose is governed more by the clinical circumstances than the result of the screening test. It serves only as a supplement to good clinical sense in poisoning management.

#### 5. PATIENTS' PERCEPTIONS OF NASOPHARYNGEAL ASPIRATION PERFORMED IN THE EMERGENCY DEPARTMENT

AKC Wai, WO Kwok, MS Chan, CA Graham, TH Rainer  
Accident & Emergency Medicine Academic Unit, the Chinese University of Hong Kong

**Background:** Nasopharyngeal aspiration (NPA) is the preferred method for collecting specimens for viral culture in patients with respiratory tract infection. As early identification of the virus may influence admission and treatment decisions, it is important to perform the test in emergency departments (ED). However the test may be perceived as uncomfortable and poorly tolerated.

**Objective:** To investigate patients' perception of NPA and the incidence of post NPA nasal bleeding.

**Design:** Prospective study.

**Setting:** An emergency department of a teaching hospital in the New Territories, Hong Kong.

**Participants:** All patients with upper respiratory tract infection undergoing nasopharyngeal aspiration as part of their emergency department investigations between 9th March and 12th August 2005 were included.

**Main outcome measures:** Patient's history of nasal procedure, experience of NPA, perception of the procedure on a 10-point scale (0: pain free, 10: most painful), and in comparison with blood taking, and occurrence of nasal bleeding.

**Results:** Of 86 patients (mean age 47 years SD23; 49 female) recruited to the study, 80 (93%) had no previous experience of NPA. 22 (26%) patients complained that NPA was very uncomfortable, in 59 (69%) it was mildly uncomfortable and 5 (6%) patients experienced no discomfort. Using the 10-point scale, the median discomfort score was 4.0. 29 (34%) patients complained that NPA was more uncomfortable than blood taking, 19 (22%) felt it was similar to blood taking, and 38 (44%) felt NPA was less

uncomfortable (P=NS). 5 patients (6%) developed nasal bleeding after the NPA test.

**Conclusion:** NPA performed in ED is a well-tolerated procedure for the majority of patients and is associated with little nasal bleeding. NPA should be used in ED when results may influence patient management.

#### 6. A FIVE-YEAR ANALYSIS OF JOCKEY CLUB HORSE-RELATED INJURIES PRESENTING TO A TRAUMA CENTRE IN HONG KONG

Veronica WT Yim,<sup>1,2</sup> Paulina SK Mak,<sup>2</sup> HH Yeung,<sup>1,2</sup> Colin A Graham,<sup>1,2</sup> Timothy H Rainer<sup>1,2</sup>

<sup>1</sup>Trauma & Emergency Centre, Prince of Wales Hospital; <sup>2</sup>Accident & Emergency Medicine Academic Unit, the Chinese University of Hong Kong, Hong Kong

**Background:** This study analysed the pattern of horse-related injury among patients who presented to a trauma centre in a teaching hospital in Hong Kong.

**Methods:** Information from the trauma centre database was analysed retrospectively. The database included trauma patients who had sustained potentially severe injuries that warranted resuscitation or close monitoring in a trauma resuscitation room (triage category 1 or 2). Data analysed included demographic variables, causes and mechanisms of injury, anatomical injury, and anatomical and physiological trauma scores, and patient outcome.

**Results:** 1,220 trauma patients were in the database between January 2001 and June 2005. Thirty-six (3%) patients had sustained horse-related injuries (mean age 34 years, range 17-54; male to female ratio 8:1) whilst at work in the Jockey Club. Twenty-two (61%) patients had the injury between midnight and 9 am. This group remained for a longer period in the resuscitation room before being admitted compared with patients presenting between 9 am and midnight (median time 127 (IQR 57-183) minutes vs 58 (IQR 43-83) minutes, p=0.06). Twenty five (69%) patients fell from horseback, whilst 11(31%) were kicked by the horse. 24 (67%) patients had a single injury, and 12 (33%) patients had multiple injuries. 18 patients had injuries to the thorax, abdomen or pelvis. 11 patients suffered from head and facial injuries, most of which were minor head injuries. 11 patients had injuries to the extremities. Twenty-five (69%) patients were admitted to hospital, 4 (11%) patients to ICU. 10 (28%) patients needed an operation. The median (SD) probability of survival was 0.996 (0.052). Median RTS (SD) was 7.841 (0.624). There were no fatalities. The occurrence rate of major trauma cases among professional equestrians was rare, with an approximate annual rate of 2.4% among jockeys and 3.1% among horse trainers.

**Conclusion:** Serious horse-related injuries presented about once every six weeks. The majority of injuries were minor and affected the trunk but occurred out of hours. Helmets, face shields and full-length body protectors should be worn when riding or handling horses.

## 7. THE PATTERN OF USE OF TRADITIONAL CHINESE MEDICINE BY ELDERLY CHINESE PATIENTS ATTENDING AN ACCIDENT AND EMERGENCY DEPARTMENT IN HONG KONG

CK Yuen

Accident & Emergency Department, Ruttonjee Hospital, Hong Kong

**Introduction:** Many Chinese emergency department patients had used traditional Chinese medicine (TCM) before visiting the emergency department (ED). There is currently no data on the prevalence of the use of TCM among Chinese patients in emergency departments in Hong Kong.

**Objectives:** The aims of this study were (1) to determine the prevalence of the use of TCM among Chinese elderly attending the emergency department in Hong Kong; (2) to explore their behaviours relating to TCM use; and (3) to alert the conventional western doctor the behaviour of this group of patients, especially the potential risk of drug herb interaction.

**Designs:** Cross-sectional questionnaire survey.

**Population:** Adult emergency department patients in an ED in Hong Kong.

**Sample:** A convenience sample of adult patients attending the emergency department of Ruttonjee Hospital from 1st February 2005 to 28th February 2005.

**Measurements:** Questionnaires including demographic data, prevalence data, and data on behaviours.

**Results:** 37.5% (95% CI = 29.1% to 45.9%), 60.9% (95% CI = 52.9% to 69.4%) and 83.6% (95% CI = 77.2% to 90.0%) of the Chinese ED patients aged 65 or above used TCM within 24 hours, 7 days and 12 months prior to attending the ED respectively. Large numbers of elderly patients (OR=2.623) used topical TCM within 7 days prior to attending the ED. Female gender (OR=2.096) and outgoing ability (OR=2.610) were associated with TCM use. The non-disclosure rate of TCM use within 7 days among older Chinese ED patients was 75.2%. The documentation rate of TCM use in medical records by emergency physicians was 11.5%. 88.4% of the elderly Chinese patients would seek conventional western treatment only if they had problems after using TCM.

**Conclusion:** The use of TCM was common among elderly patients attending ED in Hong Kong. Different from the western trend, they used the same amount of TCM as younger adults. In particular, they used topical TCM more. Most of them would not disclose their use of TCM to the conventional western doctors. Emergency physicians seldom documented the use of TCM in their patients' records. If problem arose after TCM use, the elderly patients tended to consult conventional western doctors. Doctors should be alert to the prevalence of TCM use among patients of Chinese culture origin and the potential of a significant health risk of drug interaction in this group of patients. Emergency physicians should enquire about TCM use and enrich their knowledge in TCM.

## 8. TREATMENT OF ACUTE DIARRHOEA IN ADULTS WITH SMECTA

Ralph KH Cheung

Accident & Emergency Department, Caritas Medical Centre, Hong Kong

**Objectives:** To assess the efficacy of Smecta (dioctahedral smectite) in altering the duration and frequency of acute diarrhoea in adults.

**Patients and methods:** It was a prospective randomised-controlled clinical study. Adult patients aged 18 or above attending our Accident & Emergency (AE) department with at least three times of diarrhoea per day, which lasted not more than 14 days of duration, were enrolled. Patients with exacerbation of chronic diarrhoea, bloody diarrhoea, intake of antibiotics within the past three weeks, chronic immunosuppressive conditions, pregnancy or lactation were excluded. Patients were randomly divided into two groups according to odd or even nature of the AE numbers. They were given either oral rehydration solution (ORS) plus Smecta (treatment group), or ORS (control group), for two days. The use of motility or spasmolytic agents was also recorded. Duration of diarrhoea in terms of hours, frequency of diarrhoea each day after treatment, vomiting and fever were assessed by telephone interviews and questionnaires attached to self-addressed envelopes.

**Results:** 102 patients were recruited from 23 July 2005 to 9 September 2005. Of the enrolled patients, 49 were male and 53 were female. Their mean age was 38.4 years. 56 received ORS plus Smecta, and 46 received ORS. The baseline characteristics between the two groups did not show significant differences in terms of sex, age, pre-treatment vomiting or fever. There was significant difference in pre-treatment duration of diarrhoea: treatment group (mean 28.4 hours) being longer than the control group (mean 11.4 hours). The proportion of motility agents used within each group was incidentally the same (30%). The results from 76 patients (75%) were obtained by telephone interviews, 6 (6%) from questionnaires mailed back, and 20 (20%) from both telephone and questionnaires. There was no significant difference between the treatment and control groups in terms of post-treatment duration of diarrhoea (treatment group: mean  $29.6 \pm$  standard deviation (SD) 31.2 hours; control group: mean  $31.4 \pm$  SD 32.9 hours;  $p=0.773$ ; 95% confidence interval of the difference -14.5 to 10.8), frequency of stool each day after consultation (day one – treatment group: mean 3.5 times, control group: 4.1 times,  $p=0.435$ ; day two – treatment group: 1.0 time, control group: 1.1 times,  $p=0.733$ ; day three – treatment group: 0.4 time, control group: 0.2 time,  $p=0.441$ ), fever and vomiting.

**Conclusion:** Smecta was not shown to produce significant difference in duration and frequency of acute diarrhoea in adults in this study. Treatment of acute diarrhoea should focus on rehydration and electrolyte balance.