FCEM(SA) Part II

THE COLLEGES OF MEDICINE OF SOUTH AFRICA

Incorporated Association not for gain
Reg No 1955/000003/08

Final Examination for the Fellowship of the College of Emergency Medicine of South Africa

16 March 2010

Paper I (3 hours)

All questions are to be answered. Each question to be answered in a separate book (or books if more than one is required for the one answer)

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1 a) Write down the pivotal findings that are more likely to be associated with a serious diagnosis in a patient with a painful red eye. (6)

b) Compare the pharmacological management of a patient with acute uveitis to a patient with acute glaucoma. (6)

c) Write short notes on the value of barium enemas and ultrasonography in the diagnosis of acute appendicitis. (10)

d) Discuss the significance of the white blood cell count and CRP (C-Reactive Protein) in acute appendicitis. (3)

[25]

2 a) A young male patient presents with a laceration on the volar aspect of his forearm after an altercation in a pub. Write short notes on all the flexor tendons you would test and how you would go about testing them. (8)

b) Write short notes on the pathophysiology, clinical and radiological features and management of radial head subluxation in children. (8)

c) Write short notes on the conditions defining a true hypertensive emergency. (9)

[25]

3 a) Draw a cross section of the spinal cord, and use it to illustrate the areas affected by

i) Central cord syndrome.
ii) Anterior cord syndrome.
iii) Brown Sequard syndrome. (6)

b) Discuss the clinical presentation of each of the 3 cord syndromes listed in (a) above. (9)

c) Explain the role of the cross table lateral cervical spine x-ray in the emergency department management of trauma patients. (3)

d) Detail an algorithm for clearance of the cervical spine in the trauma patient who

i) Is fully awake.
ii) Has a reduced level of consciousness. (7)

[25]

4 a) i) Explain the pathophysiological processes underlying DIC (Disseminated Intravascular Coagulation).
ii) Discuss common laboratory findings in this condition.
iii) How should this condition be treated? (10)

b) Tabulate the key differences between

i) Acute mountain sickness.
ii) High altitude pulmonary oedema.
iii) High altitude cerebral oedema. (5)

c) Discuss thyroid storm, including details of precipitants, clinical features, differential diagnosis and management. (10)

[25]

5 a) A 5-year-old child presents to your emergency department with lymphadenopathy.

i) List the 5 criteria required to make a diagnosis of Kawasaki Syndrome (Mucocutaneous Lymph Node Syndrome) (5)

ii) Which 2 specific medications should be administered while awaiting admission to ICU? (4)

b) A 25-year-old male presents to your emergency department with a recent history of diarrhoea.

i) What 3 criteria would make you suspect a diagnosis of Reiter's Syndrome in this patient? (3)

ii) What specific serological test is positive in the majority of these patients with Reiter's Syndrome? (2)

c) Name 3 medical (non-traumatic) conditions that may be associated with an unstable cervical spine. (3)

d) What is the likely aetiology and clinical presentation of

i) Horner's Syndrome. (4)

ii) Ramsay Hunt Syndrome. (4)

[25]

6 You are on duty in the emergency department when a 45-year-old male patient is brought in by family members with a history of several days of fever, vomiting, diarrhoea and a progressive deterioration of mental status. He has a history of rheumatic heart disease and the family reports that he was told that he might require some form of surgery soon. On examination he is feverish, obtunded, hypoxaemic and hypotensive (blood pressure 80/30mmHg, heart rate 120 beats per minute)

a) Explain how you might assess his intravascular fluid volume status

i) By clinical examination. (5)

ii) By using a central venous catheter to assess pressures and for comparative blood gas investigations. (5)

iii) By using emergency ultrasound and emergency echocardiography. (5)

b) You insert an arterial line and connect the patient to a monitor that measures cardiac output, stroke volume, stroke volume variability and systemic vascular resistance (such as the Vigileo™ monitor). How can this monitor assist to assess intravascular volume status and what values would you expect in a patient with significant intravascular volume depletion? (5)

c) This patient has tight mitral stenosis (mitral valve area $<0.7cm^2$) diagnosed at the time of the emergency echocardiography. What are the ideal haemodynamic conditions you would attempt to establish in this patient to maintain peripheral perfusion and avoid pulmonary oedema? (5)

[25]

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Paper II (3 hours)

All questions are to be answered. Each question to be answered in a separate book (or books if more than one is required for the one answer)

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1 a) List conditions that pose a high risk to the development of bacterial endocarditis. (6)

b) List the criteria to support a decision not to initiate a workup for pulmonary embolism on a low-risk patient. (7)

c) Write short notes on the behavioral and neurologic findings in a neonate with acute bacterial meningitis. (12)

[25]

2 a) i) List the cardiovascular effects of arsenic poisoning. (4)

ii) Discuss your diagnostic approach (special investigations) to arsenic poisoning. (5)

b) List 4 properties of bruises that are suggestive of child abuse. (4)

c) i) Define acute exacerbation of Chronic Obstructive Pulmonary Disease (COPD). (3)

ii) Compare the causes of an acute exacerbation of COPD with the common co-morbid conditions that may lead to worsening symptoms of COPD. (9)

[25]

3 a) Write short notes on

i) Botulism in children. (5)

ii) The emergency presentation of Hirschsprung's disease. (5)

iii) The assessment and management of a 6-year-old child whose parents believe may have swallowed a safety pin. (5)

iv) The clinical presentation of measles infection in a 6-year-old child, including details of incubation and infective periods. (4)

b) i) Illustrate the Salter Harris classification of paediatric fractures. (3)

ii) List the order in which ossification centres appear around the humerus, including ages. (3)

[25]

4 a) i) Define "dizziness" and "vertigo".

ii) List common causes of each symptom.

iii) Discuss your approach to a patient presenting to your emergency department with vertigo. (10)

b) Using a table, indicate the key differences in clinical presentation of a patient with headache due to

i) Carbon monoxide poisoning.

ii) Acute closed angle glaucoma.

iii) Temporal arteritis.
iv) Increased intra-cranial pressure. (8)

c) Write short notes on clinical features and management of aortic dissection. (7)

[25]

5 a) Describe the following pupil abnormalities and give the specific cause of each

i) Marcus-Gunn pupil. (3)
ii) Argyll-Robertson pupil. (3)
iii) Adies Tonic pupil. (3)

b) Describe the following classic findings in a patient with endocarditis

i) Janeway lesions. (1)
ii) Oslers nodes. (1)
iii) Roth spots. (1)

c) Explain the clinical significance of the following findings on a peripheral blood smear result

i) Pappenheimer bodies. (1)
ii) Heinz bodies . (1)
iii) Howell-Jolly bodies. (1)
iv) Burr cells. (1)
v) Spur cells. (1)
vi) Teardrop cells. (1)

d) Name the specific dermatological lesion you might find on the palms and soles of a patient presenting to your emergency department with

i) Coxsachievirus infection. (1)
ii) Erythema multiforme. (1)
iii) Kawasaki's disease. (1)
iv) Parvovirus infection. (1)
v) Scarlet fever. (1)
vi) Toxic shock syndrome. (1)
vii) Secondary syphilis. (1)

[25]

6 Read the following abstract and answer the questions below.

Validation of the Wong-Baker FACES Pain Rating Scale in Pediatric Emergency Department Patients

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ABSTRACT

Objectives: The Wong-Baker FACES Pain Rating Scale (WBS), used in children to rate pain severity, has been validated outside the emergency department (ED), mostly for chronic pain. The authors validated the WBS in children presenting to the ED with pain by identifying a corresponding mean value of the visual analog scale (VAS) for each face of the WBS and determined the relationship between the WBS and VAS. The hypothesis was that the pain severity ratings on the WBS would be highly correlated (Spearman's rho > 0.80) with those on a VAS.

Methods: This was a prospective, observational study of children ages 8–17 years with pain presenting to a suburban, academic pediatric ED. Children rated their pain severity on a six-item ordinal faces scale (WBS) from none to worst and a 100-mm VAS from least to most. Analysis of variance (ANOVA) was used to compare mean VAS scores across the six ordinal categories. Spearman's correlation (ρ) was used to measure agreement between the continuous and ordinal scales.

Results: A total of 120 patients were assessed: the median age was 13 years (interquartile range [IQR] = 10–15 years), 50% were female, 78% were white, and six patients (5%) used a language other than English at home. The most commonly specified locations of pain were extremity (37%), abdomen (19%), and back/neck (11%). The mean VAS increased uniformly across WBS categories in increments of about 17 mm. ANOVA demonstrated significant

a) Explain, with the aid of a diagram, how the Wong Baker Faces and the Visual Analogue Scale can be used in the emergency department to assess pain in children. (4)

b) Explain the following statistical concepts, as they apply in this study
   i) Median.
   ii) Interquartile range.
   iii) Mean.
   iv) Analysis of variance (ANOVA).
   v) Spearman's correlation analysis.
   vi) Post hoc testing. (12)

c) What is the meaning and significance of the confidence intervals (CI) as used in this study? [4]

d) Is it ethical to manage injured children in the emergency department without employing some objective method of assessing their pain? (5)

[25]