



THE HONG KONG COLLEGE OF ANAESTHESIOLOGISTS
FINAL FELLOWSHIP EXAMINATION (INTENSIVE CARE)
LONG ANSWER PAPER

2 Questions

Monday 8th August 2016 (1:00 pm - 3:00 pm)

NOTICE

- (A) Write your answers to the two questions in separate books.
- (B) Read the questions carefully, and in view of the time available, balance your answers to encompass points of great importance without going into needless detail.
- (C) Record your number on the cover of each book and hand in all books.

Question 1

A 39-year-old woman suffered from Systemic Lupus Erythematosus (SLE) and on long-term steroid. She is admitted for fever for 2 days and flu-like symptoms, cough and shortness of breath. She travelled to Beijing for 1 week and returned to Hong Kong 3 days ago. On examination, her Glasgow Coma Scale (GCS) is Eye-3 Verbal-5 Motor-6. Blood Pressure (BP) is 80/60, Heart Rate (HR) 120/min, Respiratory Rate (RR) 25/min. SpO₂ 95% on 6L O₂/min. Her temperature is 38.5 °C. There is crepitation noted over both lung fields. Her Chest X ray shows bilateral pulmonary infiltrate.

- (a) What is your initial management for this patient? (10 marks)**
- (b) What are your differential diagnoses for her respiratory failure? (10 marks)**
- (c) What are your investigations? (10 marks)**

Patient subsequently required intubation and mechanical ventilation. The Gram stain of her Bronchoalveolar Lavage (BAL) shows Gram-negative bacilli and she is now in septic shock.

- (d) Describe your ventilation strategy and management of her septic shock? (10 marks)**

Her condition improved after two weeks of ICU care.

- (e) How do you assess for readiness of weaning for this patient from mechanical ventilation? (5 mark)**
- (f) Give a brief account of the updated definitions of sepsis and septic shock. How could patients be identified. (5 mark)**

Question 2

A 76-year-old lady presented to the Accident & Emergency Department complaining of sudden onset of severe chest pain which started from her back between the scapulae and radiating to the front of her chest. She described the pain as piercing in nature. Her son brought her into hospital immediately.

On examination, she was very distressed from the pain and had difficulty lying supine as it tended to worsen her pain. She was afebrile, fully conscious and orientated, SpO₂ 100% on 3L O₂/min via nasal cannula, Respiratory Rate (RR) 20/min, she complained of dyspnoea. Heart Rate (HR) was 98/min regular, Blood Pressure (BP) 200/100 mmHg.

Premorbid history included essential hypertension followed up by her general practitioner, chronic constipation, poor appetite and insomnia. Her son reported that she was not compliant with her medications and her BP had been high recently. She was a non-smoker, independent in her activity of daily living, but her effort tolerance had been gradually declining. She had no known allergies.

Question A

(i) List 6 life-threatening conditions that can cause such pain (3 marks)

Chest X ray showed normal heart size, moderate unfolding of aortic arch, widened superior mediastinum, bilateral mild diffuse increased bronchovascular lung markings.

Aortic dissection was suspected and urgent Computer Tomography (CT) angiography of the aorta was booked.

(ii) What other investigations will you order and why? (5 marks)

(iii) Describe how you will manage this patient's pain to allow her to undergo CT angiography (2 marks)

Question B

Briefly discuss the pros and cons of cardiovascular imaging for aortic dissection using CT, Magnetic Resonance Imaging (MRI), Transoesophageal Echocardiography (TEE) for this patient. Justify your preference (10 marks)

CT angiography of aorta was performed. Report as follows:-

“Dissection of proximal descending thoracic aorta extending down to the left common and proximal external and internal iliac arteries.

Entry site of dissection is approximately 1.5cm from the origin of the left subclavian artery.

Non-opacification of the proximal part of the false lumen due to acute thrombosis.

Right brachiocephalic, left common carotid and left subclavian arteries appear normal.

Smooth mild dilatation of ascending thoracic aorta.

Severe narrowing of proximal left renal artery, with normal opacification.

Right renal artery appears to be arising from false lumen with moderate opacification.

Superior mesenteric artery is arising from false lumen with poor opacification.

Coeliac axis and inferior mesenteric artery originate from the true lumen with normal opacification.

Right common, external and internal iliac arteries appear normal.
Left common, and proximal external and internal iliac arteries are moderately narrowed.
No pericardial effusion.
Lungs normal with no pleural effusion.”

Question C

- (i) Explain the Stanford classification for thoracic aortic dissection (2 marks)**
- (ii) Based on this classification, what complications can be expected to occur with the different types? (3 marks)**
- (iii) What type does this patient have? (1 mark)**
- (iv) Referring to (iii), what are the possible aetiologies for this type of aortic dissection? (2 marks)**
- (v) How does the Stanford classification influence definitive therapy? (2 marks)**

The patient was admitted into your Intensive Care Unit. Her transthoracic echocardiogram was normal.

Question D

- (i) Describe the acute management for this patient and objectives of therapy (7 marks)**
- (ii) The patient was started on labetalol infusion. However, patient’s BP remained high despite incremental dose. What is your target HR and BP? (1 mark)**
- (iii) What other anti-hypertensive agent(s) will you use next and why? (2 marks)**

Over the next few days, the patient continued to have back pain but of a much lesser intensity.
She had symptoms suggestive of mesenteric ischaemia - epigastric pain, nausea, bloatedness, anorexia.

Peripheral pulses were all present with no delay or deficit.

Renal function was preserved.

A repeat CT angiography of the aorta was performed 1 week later; new findings include complete obstruction of SMA with collateral flow distally, a small left pleural effusion, and extension of the dissection into the proximal left renal artery.

Her son was not satisfied with conservative management.

Question E

- (i) What definitive therapeutic options are there for this type of thoracic aortic dissection? Discuss the indications, risks and benefits for each option (8 marks)**
- (ii) What definitive therapy do you think is best for this patient? Why? (2 marks)**

End