**Final FRCA Vascular Anaesthesia questions (2008-2020)**

**Carotid endarterectomy**

**CEA**

A 56-year-old man is listed for carotid endarterectomy 10 days after suffering a cerebrovascular accident.   
a) What are the advantages (4 marks) and disadvantages (4 marks) of performing the procedure under regional anaesthesia?   
b) What local or regional anaesthetic techniques may be used? (3 marks)   
c) How can his risk of perioperative cerebrovascular accident be minimised? (6 marks)  
d) Following this procedure what other specific postoperative complications may occur? (3 marks)

(also written as)

c) Why is cardiovascular instability common during CEA? (3 marks)   
d) Following this procedure what specific postoperative complications may occur? (6 marks)

**Carotid endarterectomy and deep cervical plexus block**

(a) Briefly describe your technique for performing deep cervical plexus block for carotid endarterectomy under LA. (35%)  
(b) List the complications associated with deep cervical plexus block. (30%)  
(c) List the advantages and disadvantages of carotid endarterectomy under regional anaesthesia (35%)

**Carotid endarterectomy and superficial cervical plexus block**

(a) Describe the anatomy of the cervical plexus. (40%)  
(b) How would you perform a superficial cervical plexus block? (25%)  
c) A carotid endarterectomy is being performed using a superficial cervical plexus block. A few minutes after clamping the carotid artery the patient becomes unresponsive to verbal command. Describe your management of this situation. (35%)

**Lower limb amputation**

You have been asked to anaesthetise a 65 year old man for a below knee amputation (BKA).  
  
a) What are the potential risk reduction strategies that can be tagged during a pre-operative assessment?  
b) What are the advantages and disadvantages of a regional technique for anaesthesia in this group of patients?  
c) What were the key findings with regard to perioperative care of patients undergoing lower limb amputation in the recent NCEPOD report on lower limb amputation?  
  
**BKA**

You are called to see a patient who has had a below knee amputation 24 hours ago. Despite using a patient controlled analgesia (PCA) pump with intravenous morphine he is still in pain.

a) Why might his pain control have become inadequate? (6 marks)

b) How would you re-establish optimal pain control? (6 marks)

c) What features could indicate that this patient is suffering from post-amputation pain syndrome

(phantom limb pain)? (3 marks)

d) What further pharmacological options are available for managing post-amputation pain syndrome? (5 marks)

**AAA**  
  
**Aortic cross clamping**

You are providing emergency anaesthesia for a 69 year old man who has a ruptured aortic aneurysm. The surgeon has cross-clamped the aorta.  
  
a) Briefly describe the anatomy of the abdominal aorta and how it gives rise to the renal circulation (4 marks)  
b) What are the potential sites for aortic cross clamping? (2 marks)  
c) Describe the (i) haemodynamic (ii) metabolic changes that occur with aortic cross clamping. (5 marks)  
d) What changes may occur with aortic unclamping? How may these be attenuated? (6 marks)  
e) What measures may reduce the likelihood of acute renal failure? (3 marks)

**Endovascular aneurysm repair**

A 79-year-old patient presents with a leaking abdominal aortic aneurysm. The vascular surgery/radiology team decide to undertake an endovascular aneurysm repair (EVAR) procedure.  
  
What are the main preoperative anaesthetic considerations for this procedure? (55%)  
Describe options for providing anaesthesia for this case and give the advantages /disadvantages of each. (45%)

**EVAR**

A 79-year-old man with a 6cm infra-renal abdominal aortic aneurysm is to undergo an endovascular aneurysm repair (EVAR). He is known to have chronic obstructive pulmonary disease.

a) What are the advantages of an EVAR compared to an open repair of the aneurysm for this patient? (8 marks)

b) List the risk factors for acute kidney injury (AKI) during any EVAR procedure. (6 marks)

c) Describe perioperative measures to prevent AKI following EVAR. (6 marks)

**Emergency ruptured aortic aneurysm repair**

A patient presents to the Emergency Department with a suspected ruptured abdominal aortic aneurysm.  
  
What are the priorities in your preoperative management? (40%)  
  
The consultant vascular surgeon would like to repair the ruptured aortic aneurysm.   
Describe your anaesthetic management in the operating theatre. (50%)

**TEVAR**

You are called to see a 62 year old male on the High Dependancy Unit. He underwent elective stenting of a thoracic aortic aneurysm (Thoracic EndoVascular Aortic Repair TEVAR) 6 hours ago. The procedure was performed under combined spinal epidural anaesthesia. The nursing staff are concerned that, although the epidural infusion was discontinued two hours ago, the patient cannot move his legs and is showing no evidence of recovery of his sensory or motor block.

Why may he still be unable to move his legs?

How would you tell between these possible causes?

What further investigation may be necessary?

How would you manage this patient?

What are the problems associated with anaesthesia for planned placement of endovascular stents for Abdominal Aortic Aneurysms?

**Aortic dissection**

(a) What are the main types of aortic dissection - pick a popular classification. How does this affect management?  
(b) What are the risk factors for aortic dissection?  
(c) What are the clinical features?  
(d) What are the radiological features?  
(e) What are the main principles of anaesthesia for emergency surgery for an aortic dissection?

**Other**

**Thoracic outlet syndrome**

You have been asked to anaesthetise a 48 year old woman for the excision of her first rib to treat thoracic outlet syndrome.  
a) What is thoracic outlet syndrome (TOS)?  
b) What are the risk factors for the development of TOS?  
c) Describe the (i) intraoperative and (ii) postoperative anaesthetic factors in the care of this patient.

**Upper limb ischaemia and subclavian steal**

You are covering the vascular list. The first patient on the list is a 48 year old woman for a subclavian transposition.  
(a) Describe the anatomy of the arterial supply to the upper limb.  
(b) What are the causes of upper limb ischaemia?  
(c) What is subclavian steal syndrome?  
(d) What are the anaesthetic considerations in anaesthetising for a subclavian transposition for subclavian steal syndrome?

**Prehabilitiation**

a) What is prehabilitation in perioperative medicine? (1 mark)

b) What are the outcome benefits of a prehabilitation programme? (3 marks)

c) Which specific issues are addressed as part of medical optimisation in a prehabilitation programme? (6 marks)

d) How will a prehabilitation exercise programme improve a patient’s cardiorespiratory physiology? (4 marks)

e) What are the benefits of carbohydrate preloading and nutritional optimisation? (4 marks)

f) What psychologically supportive interventions may be used in prehabilitation? (2 marks)

**CPET**

a) List the main measures of fitness that are obtained by a cardio-pulmonary exercise test (CPET).

(4 marks)

b) What abnormalities seen at the time of testing in a CPET may suggest cardio-respiratory disease?

(4 marks)

c) When might CPET, using a bike, be impractical (3 marks) and how else can patients’ functional capacity be assessed? (3 marks)

d) What scoring systems can help predict perioperative risk before major (non-cardiac) surgery? (6 marks)