# Thoracic Abdominal Aneurysm
# Extent 1,2,3 & 5 Postoperative Management

## A. Major complications and their causes.

**Paraplegia from spinal cord ischaemia**
- intercostal and lumbar arteries arising from the aneurysm supply the anterior spinal artery and cannot all be connected to the graft - so blood supply to the anterior spinal artery may be precarious after surgery
- intra-operative spinal cord ischaemia may cause post-op cord oedema and raised CSF pressure
- **half of the cases of paraplegia occur post-operatively, typically in association with an episode of hypotension**
- **the risk of developing paraplegia remains for several weeks after surgery**
- CSF drainage may prevent or reverse paraplegia but it can result in intracranial haemorrhage. Therefore it is important to also assess and chart conscious level regularly and consider CT brain scan if conscious level decreases or neurological signs other than leg weakness develop

**Myocardial ischaemia and infarction**
- pre-existing coronary artery disease is common
- haemodynamic change especially tachycardia may result in coronary plaque rupture
- a hypercoagulable state usually develops post-operatively
- atrial fibrillation occurs after surgery in most patients

**Haemorrhage**
- particularly a risk in the first few hours after surgery
- Subsequently thrombotic complications become more common e.g MI, PE, intercostal artery thrombosis

**Respiratory failure with difficulty weaning from ventilation**
- pre-existing lung disease is usual
- thoraco-laparotomy with chest and abdominal wounds, division or removal of a rib, partial division of diaphragm
- one-lung anaesthesia with left lung collapse during surgery
- left sided pleural effusion / haemothorax
- pulmonary remote ischaemia-reperfusion injury
- post-op chest infection is common

**Renal failure**
- pre-existing renal impairment is common
- aneurysm repair involves a period of renal ischaemia

## B. Postoperative management goals

**1. Prevention of paraplegia.**
- maintain MAP $\geq$ 80 mm Hg (or as specified on "Prevention and Treatment of Paraplegia" chart).
- avoid episodes of marked hypotension
- drain CSF usually for 48 hours post-op then leave CSF drain in place for a further 24 hours (but if there has been leg weakness more prolonged CSF drainage and a gradual increase in drainage pressure may be appropriate)
- see "Prevention and Treatment of Paraplegia" chart for CSF drainage instructions

**2. Detection of paraplegia / intracranial haemorrhage.**
- sedate patient lightly using short-acting agents i.e propofol and remifentanil to permit hourly assessment of leg movements and conscious level
- assess and chart leg movements and conscious level hourly

**3. Treatment of paraplegia**.
- raise MAP
- lower CSF drain pressure
- switch off epidural infusion
- inform the vascular anaesthetist

**4. Prevention of myocardial ischaemia / infarction and fast atrial fibrillation**
- if patient is on a beta-blocker maintain beta-blockade (HR < 80)
  (if possible avoid omitting beta-blocker if HR > 60 and treat hypotension by other means – e.g.omitting other anti-hypertensive drugs, volume replacement, vasoconstrictor. Nasogastric beta blockers are poorly absorbed in ITU patients and intravenous atenolol is preferred)
- BP < 180 systolic
- continue aspirin and minihep therapy provided there is no severe coagulopathy (IV and rectal aspirin preparations are available)
- continue statin therapy (give via nasogastric tube if can't be given orally) to stabilise coronary plaques.

**5. Detection of myocardial ischaemia**
- monitor and display ECG leads II and V5 continuously with ST segment alarms turned on and set to -1.0 mm and +1.0 mm on each of these leads.
- 12 lead ECGs daily and if ST changes develop on the ECG monitor

**6. Correction of anaemia and coagulopathy**
- keep Hb ≥ 70 (or 80 in patients with coronary artery disease)
- treat platelet count of < 70 with platelets
- treat PT ratio of > 1.5 with FFP
- treat fibrinogen of < 1.5 with FFP
- APTT may be elevated post-op because heparin is given in theatre and APTT often remains moderately elevated eg 50 s. Treatment of an isolated moderately raised APTT is not usually required unless there are clinical signs of bleeding.

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