Epidural analgesia on Critical Care

Aim: To provide quick reference guide and resource for all critical care doctors on the management of epidurals and common problems they may encounter on-call

Scope: Adult patients with epidurals running for pain management on critical care

Epidurals are placed by trained anaesthetists only. They deliver a mixture of local anaesthetic and opioids to selective sensory dermatomes to provide pain relief post-operatively and in chest trauma. This theoretically reduces parenteral opioid use limiting their side effect profile. There is recognised benefit for their use particularly in those patients at high risk of respiratory complications post-operatively.

**FULL POLICY can be found on the Acute Pain Service intranet site**

Uses: AAA surgery, Oesophagectomy, Major abdominal surgery, Rib fractures, Amputation, Thoracic surgery, Major hip and knee

Common Issues

1. **Hypotension** – common due to loss of sympathetic tone and venous pooling. Perform assessment of fluid status. Often needs low dose vasopressor *not* fluids. **Don’t forget to assess for bleeding.**

2. **Sensory block too high**
   a. Difficulty breathing = STOP EPIDURAL
   b. Numbness above nipples = REDUCE rate by 2ml/hr
   **RISKS:**
   • involvement of respiratory muscles and diaphragm
   • bradycardia due to loss of sympathetic cardiac tone (T1-4)
   • malignant arrhythmias and haemodynamic instability (rare)

3. **Sensory block too low/Absent block** – follow flow chart on next page

4. **Progressive motor block** – STOP epidural infusion if unable to flex at knee. Follow flow chart on next page.
   **RISKS:**
   • Epidural haematoma/abscess
   • May be normal if lumbar epidural or high concentration used intra-op
Block too low/inadequate block

Check block to establish dermatome level. T4 = nipples T10 = umbilicus.
Is the patient in pain?

Check anaesthetic chart:
- Level inserted
- Difficulty
- Catheter mark at skin
- Volume/concentration used intra-op

Check epidural site on patient
- Has it moved? NB: 1cm markings, two lines = 10cm, three lines = 15cm.
- Is there a leak?
- Disconnection?

Is block unilateral?

Y

Repeat up to three times max 15ml

N

Seek expert help; Acute Pain Service, ICU SpR or Anaesthetic 1st on-call

All OK

Reassess block after 15min

Is block now adequate?

Y

Consider increasing rate of infusion by 2-4ml/hr

N – after 3 boluses

Document what you have done

- If sensory block is completely absent, >15ml volume may be required or a higher concentrations; seek expert help (Acute Pain Service or Anaesthetic team)
- If block remains unilateral after 15ml – catheter may be withdrawn 1cm and the process repeated; seek expert help (acute Pain Service or Anaesthetic team)
- If no improvement consider removing epidural and starting PCA
Increasing leg weakness/motor block?

**Calculate Motor Density Score MDS**
- 0 = no detectable weakness
- 1 = slight, unable to raise extended leg
- 2 = moderate, unable to flex at knee
- 3 = complete, unable to flex foot at ankle

**IF MDS 2-3**
**STOP EPIDURAL**

- Assess MDS* every 30 mins
  - Motor density score improving?
    - Yes: Continue epidural infusion.
    - No: Consider alternative analgesia

- Is patient comfortable?
  - Yes: Continue epidural infusion.
  - No: Consider alternative analgesia

- Recomence epidural infusion. Rate and requirement for epidural should be reviewed

**IN WEEKDAY HOURS contact Acute Pain Service PRH 6468 RSCH 8102**

**IF MDS > 3**

- Consider alternative analgesia

- Is patient comfortable?
  - Yes: Continue epidural infusion.
  - No: Consider alternative analgesia

- Recomence epidural infusion. Rate and requirement for epidural should be reviewed

**Suspect epidural haematoma or abscess**

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**Contact Anaesthetist on-call RSCH 8235 PRH 6327 AND ITU SpR**

Urgent MRI scan indicated this is a NEUROSURGICAL EMERGENCY
Epidural haematoma should be evacuated within 8 hours of symptoms.