Guidelines for Anaesthetic Management of Obstetric Patients

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Anaesthetic Management Guidelines - Common Problems

- Epidural Analgesia in Labour
- Anaesthetic Management of Pre-eclampsia
- Emergency Caesarian Section (LSCS)
- Updates for Postoperative Analgesia
- Cheat Sheets
- Questions

Epidural Analgesia I

- Involves the epidural administration of local anaesthetics and opioid adjuvants
- Epidural catheter insertion is via Tuohy needle into epidural space via a STERILE TECHNIQUE
- Infusions and/or boluses of local anaesthetic/opioid solutions are administered
- Catheter placement is for the duration of labour

Epidural Analgesia II

- INDICATIONS
  - Analgesia
  - Improved control of hypertension in pre-eclampsia
  - Increase delivery options in Twin pregnancy
  - Patients with increased risks of LSCS

- CONTRA-INDICATIONS
  - Patient refusal
  - Evolving severity of pre-eclampsia with thrombocytopenia
  - Relative: platelet count of 80-100
  - Absolute: platelet count <75

Sterile preparation and infiltration of local anaesthetic to skin and intra-spinous ligament

Insertion of Tuohy needle
Passing the epidural catheter through the Tuohy needle into the epidural space

Attaching bacterial filter to epidural catheter

Sterile external fixation-ready for use

Epidural Mechanism of Effect
- Gradual diffusion of anaesthetic agents in all directions
- Maximum effect at 15-20 minutes
- Effect for 2-4 hours (agent dependent)

Spinal Anaesthesia
- Spinal needle is inserted further, into the subarachnoid space through dura mater
- Clear CSF is seen under low pressure
- Local anaesthetic mixture is slowly injected and needle withdrawn

Effects of Regional Blockade
- Sympathetic Blockade of sympathetic nervous system in the vicinity and below spinal level
- Progressive peripheral vasodilatation
- Decreased venous return to right atrium and venous pooling in lower body
- Generally decreased heart rate especially with intrathecal opioids
- Increase in peripheral perfusion
- Decreased blood pressure
### Regional Blockade - Comparisons

<table>
<thead>
<tr>
<th>SPINAL</th>
<th>EPIDURAL</th>
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<tbody>
<tr>
<td>- Small volume of LA into S.A. space (2.2-2.5mL)</td>
<td>- Larger volume of LA mixture into epidural space (10-20mL)</td>
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<tr>
<td>- “Single shot” technique</td>
<td>- Catheter placement needed</td>
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<tr>
<td>- Rapid onset of effect 5-10 minutes</td>
<td>- Slower onset 15-20 minutes</td>
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<td>- Complete loss of neurological function</td>
<td>- Less complete loss of neurological function</td>
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### Potential Complications

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<tr>
<th>Minor/Common:</th>
<th>Major/Rare:</th>
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<tr>
<td>- Spinal Headache 0.5-1%</td>
<td>- Infection (epidural abscess) 1:10-20,000</td>
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<td>- Back tenderness</td>
<td>- Haematoma 1:10-20,000</td>
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<td>Uncommon/Moderate:</td>
<td>- Up to 50% risk of paralysis with haematoma or abscess</td>
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<td>- Neuropraxia 1:5,000</td>
<td>- Emergency surgical treatment needed to avoid permanent nerve damage</td>
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<td>- Radiculopathy (arachnoiditis)</td>
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### Labour Epidural Management

- Establish with either 0.125% or 0.25%
- Bupivacaine with 5 mcg/mL Fentanyl
- 10-20 mL titrated with BP and effect
- Maintain analgesia with infusion or boluses (PCEA/Nurse administered) 0.2% Ropivacaine and 2 mcg/mL Fentanyl 8-15 mL/hr
- Boluses 5 mL at a time max 5 per hour
- Top-up for LSCS usually with Lignocaine 2%
- with 1:200,000 Adrenaline 5mL & 5 mcg/mL Fentanyl - boluses up to 20 mL
- Allow 15-20 minutes for full effect

### Pre-eclampsia

- Maternal systolic and diastolic hypertension
- Proteinuria (usually)
- Clinical symptoms of headache, visual disturbances, epigastric or RUQ pain
- Severe pre-eclampsia SBP>160 and DBP>110
  - Pulmonary oedema
  - Cerebral oedema
  - Hyper-reflexia
  - Renal dysfunction
  - Coagulation and platelet dysfunction
  - HELLP syndrome (haemolysis, elevated liver Enzymes, low Platelets)
- Eclampsia - seizures

### Anaesthetic Management of Pre-eclampsia I

- Seizure Prophylaxis
- Antihypertensive Therapy
- Regional Analgesia & Anaesthesia
- Resuscitation/Critical Care

### Anaesthetic Management of Pre-eclampsia I

- Seizure Prophylaxis:
  - Magnesium Sulphate in severe pre-eclampsia
  - MgSO4 less useful in mild-moderate pre-eclampsia
  - MAGPIE trial: MgSO4 is the drug of choice for seizure prophylaxis (Level 1 evidence)
  - MgSO4 6g loading dose over 30 minutes, maintenance of 2g/hr via infusion pump
  - Infusion started at beginning of labour and continued for 24 hours postpartum (seizure risk postpartum)
  - Potential side effects: sedation, muscle weakness, hypoventilation, potentiation of NDMRs
  - Serum Mg2+ levels measured regularly
Anaesthetic Management of Pre-eclampsia II

- **Antihypertensive Management**
  - No ideal agent
  - Institutional Protocols
  - Drug combinations of:
    - Beta blockers - Oxprenolol
    - Ca Channel Blockers - Nifedipine
    - Vasodilators - Hydralazine
  - Severe hypertension
    - Supplementary oxygen
    - Invasive arterial monitoring
    - IV Diazoxide or Hydralazine
    - Expeditious delivery

- **Regional Analgesia & Anaesthesia**

- **FBC**

- **Interim Measures:**
  - Beta blockers - Oxprenolol
  - Severe hypertension
  - Ca Channel Blockers - Nifedipine
  - Absolute contraindication if < 75, relative contraindication 80–100

- **EUC**

- **Rate of fall of platelet count more important than absolute number** (platelet may be dysfunctional)

- **Vasodilators - Hydralazine**

- **Coagulation studies APTT & INR**

- **Four Point Classification:**
  1. Epidural in-situ
    - Top-up as usual
    - Remove immediately afterwards
  2. Spinal Anaesthesia
    - Identical Pre-operative assessment
    - Same technique and doses
    - Less hypotension in severe pre-eclampsia than normal parturient
    - Not entirely contraindicated in severe pre-eclampsia but use caution in rapidly progressive disease

Anaesthetic Management of Pre-eclampsia IV - Operative

1. Epidural in-situ
   - Top-up as usual
   - Remove immediately afterwards
2. Spinal Anaesthesia
   - Identical Pre-operative assessment
   - Same technique and doses
   - Less hypotension in severe pre-eclampsia than normal parturient
   - Not entirely contraindicated in severe pre-eclampsia but use caution in rapidly progressive disease

Anaesthetic Management of Pre-eclampsia V - Operative

- **Severe Pre-eclampsia and HELLP - General Anaesthesia:**
  - Avoid acute hypertension during laryngoscopy, intubation, surgery and extubation
  - Invasive arterial monitoring
  - Large bore peripheral access and group & screened packed cells (thrombocytopenia and coagulopathy)
  - Pre-treatment with IV Diazoxide (DOC)
  - Co-induction with Alfentanil (Rapifen-DOC)
  - Aggressive BP management intraoperatively and postoperatively in critical care setting (HDU/ICU)

Emergency LSCS I

- **Four Point Classification:**
  - **Grade 1** - Immediate threat to life of parturient and/or foetus (Abruption placentae, ?cord prolapse, antepartum haemorrhage, sustained foetal bradycardia)
  - **Grade 2** - Maternal or foetal compromise, not immediately life threatening (non reassuring CTG tracing)
  - **Grade 3** - No compromise but needing early delivery (booked LSCS in labour, failure to progress)
  - **Grade 4** - Delivery at a mutually suitable time

Emergency LSCS II

- **Interim Measures:**
  - Turn off Syntocinon infusion
  - Supplementary oxygen for transfer
  - Left lateral position (decrease aorto-caval compression)
  - IV fluids and large bore access
  - BP normalisation
  - Antacid prophylaxis e.g. Sodium Citrate 30mL 0.3M solution 15 minutes prior (every LSCS patient)
**Emergency LSCS III**

- **Category 1**
  - General Anaesthetic:
    - Left lateral tilt 20-30 degrees in all cases
    - Standard RSI, preoxygenation ET O2 >90 %, cricoid pressure
    - Anaesthetic depth determined by BIS/Entropy < 60 and not by haemodynamics
  - Commence in Labour Ward 5mL, OT reception
  - S/C Opioid or PCA
  - 25 or 27 G Pencil Point Tip spinal needle
  - Sodium Citrate prophylaxis
  - Use filter when drawing up Fentanyl in glass vial as
  - Use preservative-free “baby” sterile morphine vials for
  - Backup LMA #3 or Proseal #3
  - Left lateral tilt 20-30 degrees
  - If pain or paraesthesia occurs, remove needle and try
  - NSAID PR
  - Standard RSI, preoxygenation ET O2 >90 %, Kessel and McCoy laryngoscopes #25G best balance between size and needle stiffness
  - 0.5% Bupivacaine (Isobaric) 2.2-2.5 mL with:
    - Blood in catheter - remove and try again at another interspace
  - Strict sterility and optimisation of position sitting up as for epidurals
  - 25G best balance between size and needle stiffness
  - Only clear CSF valuable. If blood consistently in hub
  - Vasoconstrictor Metaraminol (or Phenylephrine) boluses PRN to maintain BF at pre-spinal levels

**Emergency LSCS IV**

- **Category 2+**
  - Epidural in-situ:
    - Standard top up if category 2+
    - Commence in Labour Ward 5mL, OT reception
    - 5mL, Anaesthetic Room 5mL over 15 minutes.
  - Spinal Anaesthetic:
    - 25 or 27 G Pencil Point Tip spinal needle
    - 0.5% Bupivacaine (Isobaric) 2.2-2.5 mL with:
      - Fentanyl 10-15 mcg and/or
      - Intrathecal Morphine 100-150 mcg
    - Vasoconstrictor Metaraminol (or Phenylephrine) boluses PRN to maintain BF at pre-spinal levels

**Updates on Postoperative Analgesia**

- Paracetamol 1g PR/orally
- NSAID PR
- S/C Opioid or PCA
- Intrathecal Morphine 100-150 mcg
- – Fentanyl 10-15 mcg and/or
- – Intrathecal Morphine 100-150 mcg
- Vasoconstrictor Metaraminol (or Phenylephrine) boluses PRN to maintain BF at pre-spinal levels

**Cheat Sheet: General Anesthesia**

- Sodium Citrate prophylaxis
- Left lateral tilt 20-30 degrees
- Optimise sniffing position prior to induction
- Standard RSI - preoxygenation, cricoid pressure, introducer in 7.0 cuffed ETT, bougie available
- Kessel and McCoy laryngoscopes #3 (short handle)
- Backup LMA #3 or Proseal #3
- Only 2 attempts at laryngoscopy - if unsuccessful, wake patient

**Cheat Sheet: Epidurals**

- Strict sterility-epidural abscesses are real
- Optimise lower back position before starting
- 18G Tuohy needle less traumatic and possible less back pain afterwards. If dural tap occurs, much less risk of post dural puncture headache
- Catheter in epidural space no more than 6 cm
- Blood in catheter - remove and try again at another interspace (don’t try to rescue)
- If pain or paraesthesia occurs, remove needle and catheter and try again at another interspace

**Cheat Sheet: Spinals**

- Strict sterility and optimisation of position sitting up as for epidurals
- 25G best balance between size and needle stiffness
- Only clear CSF valuable. If blood consistently in hub remove and try again.
- Use Lignocaine 1-2% + Ad in sterile vial - no risk of contamination
- Use filter when drawing up Fentanyl in glass vial as small glass fragments can also be drawn up and injected
- Use preservative-free “baby” sterile morphine vials for spinals (200-500 mcg). Dilution of 10mg ampoules carries dilution, contamination and overdose risk
- If pain or paraesthesia occurs, remove needle and try again at another interspace
Questions