EPIDURAL ANALGESIA PROGRAMMED INTERMITTENT EPIDURAL BOLUS (PIEB) AND PATIENT CONTROLLED EPIDURAL ANALGESIA (PCEA) – DELIVERY SUITE

This LOP is developed to guide clinical practice at the Royal Hospital for Women. Individual patient circumstances may mean that practice diverges from this LOP.

1. AIM
   • Effective management of labour pain using a self administered and preset bolus of local anaesthetic and opiate solution

2. PATIENT
   • Woman in labour with an epidural

3. STAFF
   • Medical and Midwifery Staff

4. EQUIPMENT
   • Epidural Pump configured to programmed intermittent epidural bolus (PIEB) and patient controlled epidural analgesia (PCEA) standard orders (Appendix 1)
   • Compatible giving set and lock box
   • Premix solution as per PIEB and PCEA standard orders (Appendix 1)

5. CLINICAL PRACTICE
   • Ensure the prescription for the infusion has been completed by the Prescribing Medical Officer on the PIEB and PCEA order form - SESLHD Epidural/Intrathecal (Spinal)/Regional Infusions/PCEA chart - as per Appendix 1
   • Order the PIEB medication in mls per hour and PCEA medication in mls per bolus and specify the route as epidural
   • Label the infusion bag with a yellow epidural sticker including the patient’s name, and place yellow sticker on the Epidural Line. This must be checked by second midwife and/or medical officer
   • Observe that the following are correct:
     o PIEB or PCEA program against the medical orders
     o PIEB or PCEA infusion solution against the medical orders including the signature, date and time hung
     o Only the yellow epidural infusion set is connected to the epidural filter
     o The infusion record must be completed by the two Midwives or Medical Officers loading the bags for each infusion
   • Explain to the patient:
     o Patient is the only person to press PCEA button
     o How long it will be used for
     o How to use it
     o Need for ongoing observations
   • Change all PIEB and PCEA fluids every 24 hours to comply with infection control standards
   • Ensure that the patient has a patent intravenous cannula with which to manage any side effects of the PIEB or PCEA therapy. This should remain insitu 4 hours after the removal of the epidural
   • Commence continuous electronic fetal heart rate monitoring
   • Perform observations as per Appendix 2 and document on the SESLHD Epidural/Intrathecal (Spinal)/Regional Infusions/PCEA chart
   • Refer to Appendix 3 for problem solving
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6. DOCUMENTATION
   - Epidural/Intrathecal (Spinal)/Regional Infusions/PCEA form
   - Partogram
   - Integrated clinical notes
   - Epidural stickers
   - Fluid balance charts

7. EDUCATIONAL NOTES
   - The objective of PIEB and PCEA is that the patient receives programmed intermittent boluses with the option of PCEA if analgesic requirements are not met
   - A computerised delivery device is pre-set to deliver programmed boluses with an additional prescribed dose whenever the patient presses the PCEA button, within a set lockout period
   - Patients who have limited comprehension may not be suitable for this epidural option
   - It is important that pre-set values (on PCEA dosages only) not be adjusted without anaesthetic consultation and only staff familiar with the delivery device make said changes

8. RELATED POLICIES / PROCEDURES / CLINICAL PRACTICE LOP
   - Epidural analgesia – continuous infusion adult
   - Neuraxial (intrathecal and/or epidural) opioid analgesia (procedure)
   - Medication : administration – general principles for administration of medication
   - Intrapartum fetal heart rate monitoring
   - Labelling of injectable medicines fluids and lines
   - Accreditation of staff to give drugs in specific units
   - Sedation – respiratory depression
   - User applied labelling of injectable medicines fluids and lines. PD 2012_007
   - Naloxone - guidelines for use of naloxone hcl for the treatment of respiratory depression and over-sedation following opiate use

9. RISK RATING

10. REFERENCES
APPENDIX 1

DOSES

<table>
<thead>
<tr>
<th>PATIENT STANDARD PROGRAMMED INTERMITTENT EPIDURAL BOLUS AND PATIENT CONTROLLED EPIDURAL ANALGESIA: ROUTE EPIDURAL</th>
<th>PROGRAMMED INTERMITTENT EPIDURAL BOLUS</th>
<th>PCEA DOSE</th>
<th>HOURLY LIMIT</th>
<th>LOCKOUT TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ropivicaine 0.1% with Fentanyl 2mcg/ml premix 250ml bag</td>
<td>5mL/hr</td>
<td>5mL</td>
<td>35mL</td>
<td>10 minutes</td>
</tr>
</tbody>
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APPENDIX 2

OBSERVATIONS

<table>
<thead>
<tr>
<th>TIME OF OBSERVATIONS</th>
<th>PATIENT OBSERVATIONS</th>
</tr>
</thead>
</table>
| After initial bolus given by anaesthetist on insertion and after any clinician bolus: | Record BP and HR
• 5 minutely for 20 minutes
• then at 30 minutes
• then every 30 minutes provided the patient is stable |
| Hourly | Record Number of PCEA boluses attempted
Record Number of boluses delivered (injections)
Record Cumulative dose in mls |
| Hourly for 2 hours after insertion then 2 hourly unless there is a change in program, increasing pain or hypotension (a drop in systolic BP greater than 15mmhg) | Height of block (dermatome level)
Motor block (bromage scale)
Respiratory rate
Sedation score
Oxygen saturation |
| Each shift clinician to check | Epidural insertion site and dressing
Epidural filter
PIEB/PCEA infusion lines
PIEB/PCEA program against the orders (2 clinicians to sign) |
| If any of the following occur:
• Fetal Bradycardia
• Hypotension
• Poor analgesia
• Change in infusion or bolus | Follow PACE, escalation and Delivery Suite protocols
Increase the frequency of observations for BP, HR, Height of block, O₂ saturation as per initial bolus observations |
### Problem Solving

<table>
<thead>
<tr>
<th>Inadequate Analgesia</th>
<th>Education: Repeat patient education, identify poor comprehension by excessive attempts versus successful delivery of PCEA doses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Bolus dose:</strong> Any patient requiring 3 bolus doses per hour for more than 2 hours requires review by the anaesthetic team. An increase in the bolus dose must be done cautiously and the lockout period reviewed.</td>
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<tr>
<td>High block &gt; T4</td>
<td>- Call PACE Tier 2</td>
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<tr>
<td></td>
<td>- Give the woman supplemental oxygen</td>
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<td></td>
<td>- Remove the PCEA button from the woman</td>
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<td></td>
<td>- Sit the woman up</td>
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<tr>
<td></td>
<td>- Check the height of the block half hourly, then follow the revised management plan from the Team</td>
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<tr>
<td></td>
<td>- Cease background PCEA infusion until medical review (turn off pump)</td>
</tr>
<tr>
<td>High block &gt; T7 with inadequate analgesia</td>
<td>- Remove the PCEA button from the woman</td>
</tr>
<tr>
<td></td>
<td>- Call anesthetic team for review within 30 minutes</td>
</tr>
<tr>
<td></td>
<td>- Cease background PCEA infusion until medical review (turn off pump)</td>
</tr>
<tr>
<td>Sedation and Respiratory depression Sedation score of 2 or respiratory rate less than 10</td>
<td>- Call PACE Tier 1</td>
</tr>
<tr>
<td></td>
<td>- Give the woman supplemental oxygen</td>
</tr>
<tr>
<td></td>
<td>- Remove the PCEA button from the woman</td>
</tr>
<tr>
<td></td>
<td>- Follow the revised management plan from the Team</td>
</tr>
<tr>
<td></td>
<td>- Cease background PCEA infusion until medical review (turn off pump)</td>
</tr>
<tr>
<td>Sedation and Respiratory depression Respiratory rate remains less than 8 despite stimulation</td>
<td>- Call PACE Tier 2</td>
</tr>
<tr>
<td></td>
<td>- Give the woman supplemental oxygen</td>
</tr>
<tr>
<td></td>
<td>- Remove the PCEA button from the woman</td>
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<tr>
<td></td>
<td>- Give Naloxone</td>
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<tr>
<td></td>
<td>- Stay with the patient</td>
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<tr>
<td></td>
<td>- Cease background PCEA infusion until medical review (turn off pump)</td>
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<tr>
<td>Hypotension (Systolic Blood Pressure &lt;85mmHg)</td>
<td>- Call PACE Tier 2</td>
</tr>
<tr>
<td></td>
<td>- Remove the PCEA button from the woman</td>
</tr>
<tr>
<td></td>
<td>- Cease background PCEA infusion until medical review (turn off pump)</td>
</tr>
<tr>
<td>Poor comprehension</td>
<td>In general, patients with limited comprehension are less suited to PCEA analgesia.</td>
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