Using intra-thecal hyperbaric lignocaine for obstetric anaesthesia in the resource-poor environment

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Background:

• Lignocaine is no longer advocated for intra-thecal administration in the developed world due to the increased incidence of Transient Neurological Symptoms (or Transient Radicular Irritation).
• A Cochrane review in 2005 (2) determined this syndrome occurred in 0-30% of cases where hyperbaric lignocaine was used (compared with 1% with hyperbaric bupivacaine).
• In the resource-poor environment, intra-thecal lignocaine is still practiced as bupivacaine is not readily available. There are advantages: a short lived block requires minimal post-operative monitoring, less intra-venous fluids to maintain blood pressure (with less haemodilution in an anaemic population), minimised post-operative catheterisation and early mobilisation (where DVT prophylaxis is not available).

Aim:

• To audit the use of lignocaine for spinal anaesthesia in obstetrics, in particular the incidence and impact of TNS.

Method:

• Patients who underwent uncomplicated caesarean sections were followed up in a 1 month period at the Maternal Hospital in Lilongwe in Malawi.
• All spinal injections were at L3/4 or L4/5 level. All had 1.5 mls of hyperbaric 5% lignocaine via a 25g Sprotte needle. The onset and duration of anaesthesia, level of block achieved, time to first mobilisation and complications within 24 hours were documented.
• Routine follow up was conducted 24 hours after surgery. Use of local nursing staff and medics were required for translation purposes.

Results:

• 72 patients in total were audited
• The mean age was 22.6 (range 16 to 34) years, weight 55 (range 45 to 80) kg and parity 2 (range 0 to 5)
• 8.3% (6 out of 72) required GA as a result of inadequate block due to surgery duration over 45 minutes (in 5 of these 6 the surgeon was ‘junior’).
• The mean duration of the block was 52 minutes.
• The mean duration of time from injection to block termination (defined as 3/5 power in hip flexors) was 138 minutes.
• TNS occurred in 3 cases (4.2%). There was a wide range of severity scores and 2 out the 3 patients required opioid analgesia (pethidine 1mg/kg).
• The symptoms persisted for an average of 32 hours.
• 2 out of 3 patients stated they mobilised less as a result of their symptoms.
• There was no abnormality on examination at 24 hours and 72 hours.
• Follow-up after this period was not possible.

Conclusion:

• The incidence of TNS in this patient group was 4.2%.
• All symptoms were transient and resulted in no prolonged morbidity.
• Avoidance of general anaesthesia is vital as limited monitoring and little supplemental oxygen results in a high morbidity and mortality.
• The advantages in this patient group of early recession of the block and potentially early mobilisation are not to be understated.
• Therefore, if considering the risk:benefit ratio for this form of anaesthesia in the resource-poor environment, lignocaine spinals may be justified and even beneficial.

Graphs (above) 1a. Onset of effective block in audit population. Graph 1b. Duration of block in audit population.

Table 1. (below) Overview of 3 patients who experienced TNS

<table>
<thead>
<tr>
<th>Patient</th>
<th>Onset</th>
<th>Duration</th>
<th>Pain</th>
<th>Distribution</th>
<th>Analgesia</th>
<th>Mobilisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24h</td>
<td>48h</td>
<td>Mod</td>
<td>Buttocks</td>
<td>Pethidine 50 mg</td>
<td>n</td>
</tr>
<tr>
<td>2</td>
<td>18h</td>
<td>24h</td>
<td>Severe</td>
<td>Thighs</td>
<td>n</td>
<td>y</td>
</tr>
<tr>
<td>3</td>
<td>24h</td>
<td>24h</td>
<td>Severe</td>
<td>Buttocks</td>
<td>Pethidine 50 mg</td>
<td>n</td>
</tr>
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References: