Caudal Epidural Blockade in Adolescents

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Background

• Caudal epidural blockade is the most common regional technique used in infants and children
• The opiate sparing properties of neuraxial analgesia can reduce the incidence on nausea, vomiting, and respiratory suppression
• Caudal epidural blockade can be particularly beneficial in austere environments where there are limited options for postoperative analgesia.
• There is a paucity of experience with the use of caudal epidural blockade in adolescents

Methods

• This was a retrospective review of five cases
• The patients were cared for in either San Miguel, Mexico during an orthopedic surgical trip of Kid's First (Nashville, Tennessee) or in San Pedro Sula, Honduras during a urologic surgical trip of International Volunteers in Urology (Salt Lake City, Utah)
• Demographic data was obtained
• Caudal blocks were placed after the induction of anesthesia and prior to the surgical start
• Clonidine 1 µg/kg was added to each block
• Intraoperative volatile anesthetic and opioid requirements were recorded
• Efficacy of the block was judged by the time until first request for analgesia in the postoperative period.

Results

<table>
<thead>
<tr>
<th>Patient #</th>
<th>Age (years)</th>
<th>Weight (kilograms)</th>
<th>Gender</th>
<th>Surgical procedure</th>
<th>Agents for caudal block</th>
<th>Time to first request for analgesia (hours)</th>
<th>Total doses of analgesic agents during first 24 postoperative hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>13</td>
<td>42</td>
<td>M</td>
<td>Hip arthroplasty and femoral osteotomy</td>
<td>0.2% ropivacaine (20 mL) + clonidine (1 µg/kg)</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>14</td>
<td>45</td>
<td>M</td>
<td>Bilateral femoral osteotomy</td>
<td>0.25% bupivacaine (20 mL) + clonidine (1 µg/kg)</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
<td>51</td>
<td>F</td>
<td>Femoral osteotomy</td>
<td>0.2% ropivacaine (25 mL) + clonidine (1 µg/kg)</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>17</td>
<td>62</td>
<td>F</td>
<td>Vaginal reconstruction</td>
<td>0.25% bupivacaine (25 mL) + clonidine (1 µg/kg)</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>18</td>
<td>71</td>
<td>M</td>
<td>Redo hypospadias repairs</td>
<td>0.25% bupivacaine (25 mL) + clonidine (1 µg/kg)</td>
<td>18</td>
<td>1</td>
</tr>
</tbody>
</table>

• The cohort included 5 adolescents, aged 13 to 18
• Minimum alveolar concentration (MAC) requirement ranged from 1-1.2 MAC for all cases
• Intraoperative opioid administration was less than 2 µg/kg of fentanyl for each patient
• Time until postoperative request for analgesia ranged from 12-18 hours
• Mild pain was treated with nonsteroidal such as PO ibuprofen, or IV diclofenac
• Severe pain was treated with intravenous tramadol or meperidine

Conclusion

• Our preliminary experience demonstrates that caudal epidural blockade provides effective analgesia following major urologic and orthopedic procedures in adolescents

References