Pain after paediatric tonsillectomy – Automated SMS texting as a novel audit tool

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Background
• Pain after tonsillectomy can be prolonged and severe.
• The use of simple analgesics (paracetamol and ibuprofen) may be insufficient to control pain.
• Codeine, commonly used to add post-tonsillectomy pain control, was withdrawn from use in children in 2013.
• Hospitals faced a dilemma – rely on simple analgesia alone or provide an alternative opioid for breakthrough pain.
• Our hospital elected to allow low dose oral morphine solution as a take-home rescue analgesia.

Objectives
• To test SMS (Short Message Service) texting as an improved method for collecting post-operative data from families compared with previous postal audits (response rates of 50-60%).
• To define the pain profile of patients recovering from tonsillectomy over the first 10 postoperative days.
• To investigate the pattern of analgesia given to the patient and, in particular, the use of morphine for rescue analgesia.
• To use the audit results to aid in development of a unified approach to post-tonsillectomy analgesia prescribing.

Methods
• Audit standards were defined according to the UK Royal College of Anaesthetists recommendations.
• Patients having tonsillectomy, with or without adenoidectomy, were recruited on the day of surgery.
• After appropriate explanation, parents consented to an external company having temporary access to their mobile phone number. They would receive automated SMS text messages each evening from the day after surgery for 10 days, to which they were asked to respond with a number code. They were given a copy of a FACES pain scale to aid in pain scoring. A response would trigger the next question and there were 3 questions each evening, followed by a message of thanks. Failure to respond would trigger the first message to be sent again the following morning.
• Responses were automatically entered into a database for analysis, along with demographic and basic clinical information on indication for, and method of surgery.

Results
• 32 recruited patients had surgery. 50% were males.
• Age range 10mths – 15yrs (mean 5yrs); weight range 6.6-64kg (mean 22.6kg).
• All were day or single overnight stay. 27 (84%) provided data on 25 out of 10 days.
• Indication for tonsillectomy: 21 patients had sleep-disordered breathing (SDB), including 6 with severe obstructive sleep apnoea (OSA) and 14 patients had recurrent tonsillitis, including 5 who also had SDB.
• Method of surgery: 22 coblation, 8 bipolar diathermy.
• All patients had analgesia available; 87% had morphine.
• Daily pain scores indicated a high proportion of patients had moderate (score 3-7) to severe (score 8-10) pain, despite appropriate analgesia.

• The average pain score ranged from 4.0 on Day 1 to a peak of 5.5 on Day 6 to a minimum of 2 on Day 10. Comparison of average pain scores (in bold) by age, surgical indication and technique yielded interesting results:

<table>
<thead>
<tr>
<th>Age</th>
<th>N=17</th>
<th>N=13</th>
<th>Age 3 and under</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>4.9</td>
<td>4.4</td>
<td>2.15</td>
</tr>
<tr>
<td>Recurrent infection</td>
<td>5.67</td>
<td>3.61</td>
<td></td>
</tr>
<tr>
<td>Bipolar diathermy</td>
<td>5.8</td>
<td>4.25</td>
<td></td>
</tr>
<tr>
<td>Coblation Extracapsular</td>
<td>4.59</td>
<td>2.15</td>
<td></td>
</tr>
<tr>
<td>Intracapsular</td>
<td>4.59</td>
<td>2.15</td>
<td></td>
</tr>
</tbody>
</table>

• Morphine used on at least one postoperative day by 69% of patients (88% of diaphermy patients and 61% of coblation patients). There was a 30% incidence of post-operative nausea and vomiting (PONV) on at least one day, but this was not related to morphine use, as shown below:

• It can be seen that morphine is often required a few days into recovery, rather than immediately postoperatively.

Conclusions
• Automated SMS texting is a useful audit tool, compared with postal and telephone audits of patients at home, allowing daily data collection & excellent response rate.
• Pain following paediatric tonsillectomy is significant and prolonged for at least 10 days and severe pain may occur in spite of appropriate analgesia.
• We found prescription of opioid rescue analgesia in addition to paracetamol and ibuprofen is appropriate and that parents do administer it as required.
• The incidence of PONV is high, and more advice for parents would be useful.
• This data allowed us to reach consensus on hospital approach to postop analgesia for tonsillectomy patients: 10 days of paracetamol and ibuprofen, benzydamine spray and 10 doses of oral morphine (0.1mg/kg) for patients >3years without OSA.

Future Study
• We will look further into how the technique of surgery affects pain, as there is some indication here that intracapsular coablation is half as painful as extracapsular.

• If this is the case, this may lead us to further optimise analgesic recommendations.

References
[4] Sheffield Children’s NHS Foundation Trust
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