Dexamethasone as an Adjunct to General Anesthesia for Bilateral Myringotomy with Tube Placement (BMT) in Children: A double blind randomized placebo study

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Background

- BMT is one of the most common outpatient surgical procedures in children performed under general anesthesia.
- These children often require analgesia despite the short nature of the surgery.
- Dexamethasone has been shown to decrease pain in patients after adenotonsillectomy, but has not been studied in myringotomy patients.
- This prospective double blind randomized study measures the effect of dexamethasone as an adjunct to general anesthesia during BMT.

Methods

- After IRB approval and informed consent, ASA I and II children ages 1-9 were enrolled in this study.
- 86 Children were assigned to either dexamethasone (D) 0.2 mg/kg IV (max 20 mg) or Placebo (P) (0.05 ml/kg of normal saline).
- After mask induction, all children received fentanyl 1 mcg/kg IV and ketorolac 0.5 mg/kg IV in addition to the study drug.

Assessment Tools

- Children’s Hospital Eastern Ontario Pain Scale (CHEOPS): a pain scale (range 4-13) that evaluates cry, facial expression, verbal response, torso appearance, touch directed at wound, and leg movement.
- Aono’s 4-point agitation scale (AFPS):
  1. a calm patient
  2. a patient that can easily be calmed
  3. moderate agitation or restlessness
  4. combative or disoriented patient
- Time to awakening, pain medication, and vomiting were recorded.

Results

- Anesthetic times and vomiting were similar in both groups (see table).
- There was a trend towards more pain in the placebo group with 49% vs. 36% of children having a CHEOPS score > 7 (p = 0.28).
- There was also a trend towards less agitation in dexamethasone group with 80% vs. 65% (p = 0.20) being calm (AFPS =1) after surgery.
- There is a statistically significant difference in age and weight.

Table

<table>
<thead>
<tr>
<th>Variable</th>
<th>Dexamethasone (n = 45)</th>
<th>Placebo (n = 41)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>4.9 ± 2.0</td>
<td>3.6 ± 2.0</td>
<td>0.002</td>
</tr>
<tr>
<td>Weight</td>
<td>20.6 ± 6.7</td>
<td>16.5 ± 4.8</td>
<td>0.003</td>
</tr>
<tr>
<td>Anesthesia end to wake up time (min)</td>
<td>11.0 ± 7.0</td>
<td>11.7 ± 7.0</td>
<td>0.64</td>
</tr>
<tr>
<td>Vomiting</td>
<td>4 %</td>
<td>2 %</td>
<td>0.99</td>
</tr>
<tr>
<td>Max CHEOPS</td>
<td>7.0 ± 1.7</td>
<td>7.7 ± 2.0</td>
<td>0.13</td>
</tr>
<tr>
<td>CHEOPS ≥ 7</td>
<td>36%</td>
<td>49%</td>
<td>0.28</td>
</tr>
<tr>
<td>Max Agitation score</td>
<td>1.4 ± 0.6</td>
<td>1.5 ± 0.7</td>
<td>0.27</td>
</tr>
<tr>
<td>Agitation score ≥ 2</td>
<td>26%</td>
<td>41%</td>
<td>0.17</td>
</tr>
</tbody>
</table>

Conclusion

In children who received dexamethasone, there was a trend towards decreased agitation (p=0.20) and pain (p = 0.20) as assessed by CHEOPS and Aono scales, respectively, although this did not reach statistical significance. Further enrollment is needed to reach significance.

References