Background

Polysomnography continues to be the gold standard in determining the degree of obstructive sleep apnea (OSA) in children. Furthermore, sleep studies are utilized to aid in patient disposition after adenotonsillectomy. However, sleep study results can be variable and inconclusive. Clinical symptomology may still lead to adenotonsillectomy in pediatric patients despite “normal” sleep studies.

Pediatric sleep studies are expensive, not readily available, and time consuming for families. At Nationwide Children’s Hospital about 5% to 8% of patients undergoing adenotonsillectomy have undergone formal sleep studies. The question arises how to determine which children need admission status post adenotonsillectomy without a pre-operative sleep study. Most importantly how can we screen all pediatric patients for OSA in a simple and cost-effective manner. Adult patients get screened for OSA using the STOP-BANG questionnaire. There is no such accepted universal questionnaire for pediatric patients.

200 screening questionnaires were given to those whose child was having adenotonsillectomy. Using this screening questionnaire, we attempted to find a difference in children that were admitted versus those discharged home after adenotonsillectomy.

Methods

After obtaining IRB approval 199 patient’s parents were approached to participate in our survey preoperatively. We included all children undergoing tonsillectomy. 99 of these patients had been designated as outpatient and 100 were to be admitted postoperatively. We had 20 questions on the survey adapted from Mindell JA et al and elements of the STOP-BANG questionnaire pertinent to pediatrics. Each question was equally weighted. Two points were given for a yes answer, one point for an sometimes, and zero points were given if unsure or no. Zero points were also given if there was no answer provided by the parents. The points for the survey were tallied and the two groups were compared.

The survey of admitted patients scored 24.48 ± 7.12 versus the outpatients that scored 18.10 ± 7.14 out of a total of 40 possible points. The non-paired t-test showed p<0.0001.

Results

<table>
<thead>
<tr>
<th>Adenotonsillectomy</th>
<th>Planned admission after</th>
<th>Outpatient procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>47 females</td>
<td>49 males</td>
</tr>
<tr>
<td></td>
<td>53 males</td>
<td>50 females</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>18.78 ± 5.93</td>
<td>20.87 ± 5.00</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>107.3 ± 9.80</td>
<td>114 ± 9.78</td>
</tr>
<tr>
<td>Age (years)</td>
<td>4.53 ± 1.17</td>
<td>5.28 ± 1.12</td>
</tr>
</tbody>
</table>

Discussion

In pediatric patients undergoing adenotonsillectomies, there was a difference in parental responses to survey questions depending on whether patient was scheduled to stay post-operatively or discharged home. This may provide an additional screening tool to help determine who needs postoperative admission following adenotonsillectomy when there is no sleep study present.

The sensitivity of the survey may be further evaluated by evaluating its use in patients with documented OSA on a sleep study.

If able to identify OSA, the screening tool may then be applied to other children with undiagnosed sleep apnea undergoing surgery to determine whether they need postoperative monitoring and admission, as well as a pediatric otolaryngology evaluation. Further prospective randomized trials are needed to determine if this screening tool can be used to determine the need for postoperative admission in children with undiagnosed OSA.

References


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