PAEDIATRIC TYMPANOPLASTY: SURGICAL OUTCOMES AND SUCCESSFUL PROGNOSTIC FACTORS

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INTRODUCTION

• Chronic suppurative otitis media (CSOM): One of the most common childhood chronic infectious diseases worldwide;
• Pediatric tympanoplasty: A frequently performed procedure with varying reported success rates:
  - 35-94%;
  - 56-94%.
• Tympanic membrane repair success in children: Often behind what is typically achieved in adults with similar underlying risk factors:
  - Frequent upper respiratory tract infections;
  - Persistent otitis media;
  - Ongoing Eustachian tube dysfunction;
  - Inconsistent postoperative care;
  - Reduction of number of infections of the superior respiratory tract;
  - Better Eustachian tube function;
  - Possibility of spontaneous resolution;

• What is the Optimal Age to Repair Tympanic Membrane Perforations in Pediatric Patients?

Arguments in Favor of Surgery at an Earlier Age (Table 1);
• Hypersensitivity and prevention of aquatic activities with effect on the quality of life;
• Higher incidence of severe secondary complications due to COM in younger children;
• Limitation of the damage that chronic infection can cause to other structures in the middle ear;
• Better cosmetical results at younger ages.

Arguments in Favor of Delayed Tympanoplasty;
• Surgical hearing and anatomical maturity;
• Reduction of number of infections of the superior respiratory tract;
• Better Eustachian tube function;
• Possibility of spontaneous resolution;

MATERIALS AND METHODS

• Retrospective study;
• Children (<18 years) who underwent tympanoplasty (2014-2016);
• Factors tested as outcome predictors:
  - Age ≤10 yrs;
  - Previous adenoidectomy;
  - Perforation cause, site and size;
  - Surgical technique;
  - Graft material used;
  - Pre and postoperative hearing levels.

SURGICAL SUCCESS:
• Anatomic success: An intact graft after a 6 months postoperative period;
• Functional success: A minimum of 10 dB gain in the auditory threshold or conservation of hearing level in the case of normal pre-operative hearing after a 6 months postoperative period.

RESULTS

22 patients; 21 procedures

<table>
<thead>
<tr>
<th>Age in yrs</th>
<th>Success (n)</th>
<th>Surgical technique – no. (%)</th>
<th>Tympanoplasty type 1</th>
<th>2006 Outcomes</th>
<th>p: 10 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre and POS</td>
<td>12 (55.6)</td>
<td>10 (45.5)</td>
<td>2 (8.9)</td>
<td>1 (4.5)</td>
<td>3 (13.6)</td>
</tr>
<tr>
<td>Normal</td>
<td>10 (45.5)</td>
<td>9 (40.9)</td>
<td>1 (4.5)</td>
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None of the prognostic factors has a statistically significant effect on our surgical outcome.

60 patients; 78 procedures

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<th>Surgical technique – no. (%)</th>
<th>Tympanoplasty type 1</th>
<th>2006 Outcomes</th>
<th>p: 10 yrs</th>
</tr>
</thead>
<tbody>
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<td>Pre and POS</td>
<td>12 (50)</td>
<td>10 (50)</td>
<td>2 (8.3)</td>
<td>1 (4.2)</td>
<td>3 (13.8)</td>
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<tr>
<td>Normal</td>
<td>10 (50)</td>
<td>9 (39.1)</td>
<td>1 (4.2)</td>
<td>1 (4.2)</td>
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There is an statistically significant association between AGE andAGE GROUPS (≤10 yrs vs. > 10 yrs) and ANATOMIC and SURGICAL success (p ≤ 0.05; OR: 0.03; 0.05; OR: 0.03; 0.05; L-R).

DISCUSSION/CONCLUSION

• Tympanoplasty is the first-line chronic otitis media treatment and there are different factors that influence the surgical outcomes;
• A sample of 22 patients doesn’t show any statistically significant association between the predictors factors tested and the success rates;
• When a bigger sample is used, it’s possible to realize that the older patients have better perforation closure rates and better surgical outcomes; the patients with normal middle ear mucosa at the time of surgery have less reperforation rates; and that patients that underwent tympanoplasty type 1 have better postoperative hearing levels.
• It will be important to enlarge the sample and to build a prospective study to validate these conclusions and to understand what’s the best factors that predict the surgery results.