Antibiotics for reduction of posttonsillectomy morbidity: a meta-analysis
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CRD summary
This review assessed the effects of post-operative antibiotics on post-tonsillectomy morbidity. The authors concluded that post-operative antibiotics do not reduce pain, but do hasten return to work and normal activities. It is difficult to assess the robustness of the review findings without further details of the review methods and an assessment of the quality of the included studies.

Authors' objectives
To assess the effects of post-operative antibiotics on post-tonsillectomy morbidity.

The review also assessed the cost-effectiveness of this intervention, but this abstract only refers to efficacy.

Searching
PubMed and the Cochrane Library were searched from inception to October 2004 using the reported search terms. Textbooks, reviews and original trials were cross-referenced, while experts in the field were contacted.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) were eligible for inclusion. The included studies lasted between 1 and 7 days.

Specific interventions included in the review
Studies that compared post-operative oral antibiotics with placebo or no treatment were eligible for inclusion. Studies that used treatments other than oral antibiotics were excluded. Most of the included studies used oral amoxicillin; two studies used oral amoxicillin-clavulanate.

Participants included in the review
Studies of patients who had had tonsillectomy with or without adenoidectomy were eligible for inclusion. The included studies were undertaken in children and adults.

Outcomes assessed in the review
Studies that assessed post-operative pain, time to return to normal diet and time to return to normal activities were eligible for inclusion. The included studies assessed post-operative pain using different visual analogue scales (VAS).

How were decisions on the relevance of primary studies made?
The authors did not state how studies were selected for the review, or how many reviewers selected the studies.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
Two reviewers, who were blinded to the results, independently extracted the results and details of methods used to measure the outcomes. Authors were contacted for further information about data collected but not reported. Where possible, for each study, the mean value for each outcome of interest (with standard deviations, where reported) was extracted and used to calculate a weighted mean difference (WMD) between treatments, along with a 95% confidence interval (CI). The methods used to estimate missing standard deviations were reported.
**Methods of synthesis**

How were the studies combined?
The results from individual studies were combined using a random-effects meta-analysis. Pooled WMDs with 95% CIs were calculated for each outcome of interest.

How were differences between studies investigated?
Some differences between the studies were discussed in the text. Differences in results between studies could be examined from presented forest plots and point estimates of treatment differences (with 95% CI) for individual studies. Statistical heterogeneity was not assessed. A sensitivity analysis was conducted by replacing VAS pain data for oral amoxicillin versus placebo with data for topical amoxicillin-clavulanate and topical clindamycin for one study with multiple treatment arms.

**Results of the review**

Seven RCTs (n=552) were included in the review.

Post-operative pain: there was no statistically significant difference between antibiotics and control in VAS pain over the first 7 post-operative days; the WMD (3 RCTs) was -0.64 (95% CI: -3.46, 2.18, P=0.66).

Time to return to normal diet: treatment with antibiotics was associated with a significantly faster return to normal diet compared with the control; the WMD (3 RCTs) was -1.22 days (95% CI: -1.97, -0.48, P=0.001).

Time to return to normal activity: treatment with antibiotics was associated with a significantly faster return to normal activity compared with the control; the WMD (2 RCTs) was -0.99 days (95% CI: -1.80, -0.17, P=0.02).

**Cost information**
The direct costs of antibiotics per patient ranged from US$8 to US$77. The cost-savings associated with the reduction in time to return to normal activities with antibiotics was estimated to range from US$71 to US$163.

**Authors' conclusions**
Post-operative antibiotics did not reduce pain, but did reduce the time to return to work and to normal activities after tonsillectomy by about 1 day. These benefits should be balanced against the costs and potential harms of routine use of antibiotics.

**CRD commentary**
The review addressed a clear question that was defined in terms of the participants, intervention, outcomes and study design. Relevant studies were sought from several sources, but it was not clear if unpublished studies were eligible or if any language limitations had been applied, thus the potential for publication and language bias could not be assessed. Methods were used to minimise reviewer errors and bias in the extraction of some data, but it was unclear whether similar steps were taken at the study selection stage. Only RCTs were included, but the quality of them was not assessed; the results from these studies and any synthesis may not, therefore, be reliable.

The studies were pooled using meta-analysis, but statistical heterogeneity was not assessed. However, the presentation of results from individual studies with 95% CIs and as forest plots allowed an examination of heterogeneity amongst the studies. Potential side-effects are an important consideration in such treatments but, although the authors made some reference to this in their discussion, these data appears to be lacking from their review. A lack of complete reporting of review methods and the lack of an assessment of the quality of the included studies made it difficult to assess the robustness of the conclusions.

**Implications of the review for practice and research**
Practice: The authors stated that clinical decisions regarding the use of post-operative antibiotics need to balance the
benefits against potential harms, such as increased antibiotic resistance and the side-effects of antibiotics.

Research: The authors stated that further prospective studies that balance benefits against the side-effects of antibiotics are required to estimate the cost-effectiveness of post-operative antibiotics.

Bibliographic details

PubMedID
15933509

DOI
10.1097/01.MLG.0000163749.77019.8F

Indexing Status
Subject indexing assigned by NLM

MeSH
Adenoidectomy; Administration, Oral; Anti-Bacterial Agents /administration & dosage /adverse effects /economics; Cost-Benefit Analysis; Diet; Humans; Pain Measurement; Pain, Postoperative /drug therapy; Postoperative Care; Postoperative Complications /drug therapy; Tonsillectomy /rehabilitation

AccessionNumber
12005000537

Date bibliographic record published
30/11/2006

Date abstract record published
30/11/2006

Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.