Systematic review on analgesics given for pain following tonsillectomy in children

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CRD summary
This review examined the effectiveness of opioids, non-steroidal anti-inflammatory drugs and paracetamol for pain relief after tonsillectomy in children. The authors concluded that the available evidence does not allow firm conclusions to be drawn about the efficacy of different analgesics relative to one another or to placebo. This conclusion appears reliable.

Authors’ objectives
To examine the effectiveness of opioids, non-steroidal anti-inflammatory drugs (NSAIDs) and paracetamol for pain relief after tonsillectomy in children.

Searching
MEDLINE (via PubMed), CINAHL, the Cochrane Library and EMBASE were searched; the search terms were reported. The searches were updated in April 2003. The reference lists of retrieved articles were also checked.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) with 10 or more participants per treatment group were eligible for inclusion.

Specific interventions included in the review
Studies of systemic opioids, NSAIDs or paracetamol, administered prophylactically or as needed, were eligible for inclusion. In the included studies, the analgesics were administered post-operatively, peri-operatively with or without additional analgesia, or during the late post-operative period. The drugs of interest were given at various doses, by various routes, and were compared with placebo, each other or other analgesics (details were reported). In some studies, other analgesics were co-administered.

Participants included in the review
Eligible participants were children aged 1 to 16 years who were undergoing tonsillectomy or adenotonsillectomy for any indication. No details of the participants in the included studies were reported.

Outcomes assessed in the review
The studies were required to report the incidence or severity of post-operative pain, or need for rescue analgesia. Pain was measured on a variety of different scales and assessed by the patient, an observer or both. Outcomes related to rescue analgesia included the number of patients requiring rescue analgesia, the time to first dose of rescue analgesia, the number of doses of rescue analgesic and the total dose of rescue analgesic. The review also assessed adverse events. Follow-up in most studies ranged from 30 minutes to 24 hours, but five studies had follow-up periods of 2 to 10 days.

How were decisions on the relevance of primary studies made?
One reviewer assessed titles and abstracts retrieved by the literature search. Potentially relevant articles were retrieved as full papers and two independent reviewers assessed these.

Assessment of study quality
Validity was assessed using the Oxford (Jadad) scale, which assigns a score of 0 to 5 based on randomisation, blinding and attrition. Two independent reviewers assessed validity.

Data extraction
Two reviewers independently extracted the data. Studies were classified as sensitive if they reported a statistically significant difference between the treatment groups.

**Methods of synthesis**

How were the studies combined?
The studies were combined in a narrative.

How were differences between studies investigated?
For analysis of the outcomes, the studies were divided into those where the analgesics under review were given post-operatively as needed and those where analgesics were given prophylactically (pre- or intra-operatively) with or without other analgesics. Studies that reported statistically significant differences between treatments were tabulated separately. Other differences between the studies were presented in tabular format and discussed in the text.

**Results of the review**

Thirty-six RCTs (n=2,309) were included. The sample size per study group ranged from 10 to 50 (median 25).

The included studies had Jadad scores ranging from 0 to 5; nine studies had a score of 5 and three studies scored 4.

Twenty of the included studies showed no significant difference between treatments. There were only five placebo-controlled studies without routine administration of drugs other than the study analgesic and rescue analgesia, and these involved five different study analgesics. No analgesic provided protection throughout the day of operation with a single prophylactic dose.

The reporting and recording of adverse effects varied amongst studies. The most common adverse effects were nausea and vomiting (reported in 28 studies), sedation and bleeding (both reported in 8 studies).

**Authors’ conclusions**

The ability to draw conclusions about the clinical efficacy of the various analgesics was limited by the variable methodology and inability to detect statistically significant treatment differences of the available studies.

**CRD commentary**

The review question and inclusion criteria were clear. The authors searched a range of relevant sources for published studies. Unpublished studies were not sought, so the review could be at risk of publication bias. It was unclear whether language restrictions were applied, so the risk of language bias is difficult to assess. Study quality was assessed using a standard scale. The study selection, quality assessment and data extraction processes were undertaken independently by two reviewers, which reduces the risk of bias and errors affecting the review process. Relevant details of the included studies were presented in the article and online appendices (accessed March 2007; a journal subscription may be required to access these data), although details of the participants were not reported. The narrative synthesis of the studies seemed appropriate in view of the large number of different comparisons (drugs, doses and routes of administration) involved. The authors’ cautious conclusions are in line with the evidence presented and appear reliable.

**Implications of the review for practice and research**

Practice: The authors stated that repeated analgesic administration is necessary to provide adequate pain relief but the available data do not provide guidance as to the best agent and dose.

Research: The authors stated that further larger studies with more standardised methodology are required to evaluate analgesics in children, and that tonsillectomy could be a useful model for clinical research. They also stated that self-reported pain should be used as the primary pain measurement outcome.
Bibliographic details

PubMedID
16109456

DOI
10.1016/j.pain.2005.05.012

Indexing Status
Subject indexing assigned by NLM

MeSH
Adolescent; Analgesics /therapeutic use; Child; Child, Preschool; Databases as Topic /statistics & numerical data; Female; Humans; Infant; Male; Pain /drug therapy /etiology; Pain Measurement; Randomized Controlled Trials as Topic /methods; Tonsillectomy /adverse effects

AccessionNumber
12006000169

Date bibliographic record published
31/05/2007

Date abstract record published
31/05/2007

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.