

Evidence lacking to determine whether preoperative analgesic use reduces post dental treatment pain for children

Abstracted from

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Question: In children does the use of analgesics prior to dental treatment reduce post-operative pain?

Data sources The Cochrane Oral Health Group Trials Register, CENTRAL, Medline, Embase, LILACS and the ISI Web of Knowledge and relevant dental journals were searched with no restrictions.

Study selection Randomised controlled trials (RCTs) of analgesics given before dental treatment versus placebo or no analgesics in children and adolescents ≤ 17 were included. Those having treatment under sedation or general anaesthesia were excluded.

Data extraction and synthesis Two reviewers independently assessed eligibility and undertook data extraction and assessment of risk of bias. Meta-analysis was undertaken where appropriate.

Results Five trials (190 participants) were included, three involved dental treatment, two orthodontic treatment, none of the trials was at low risk of bias. Three compared paracetamol with placebo, only two provided data for analysis, this showed a non significant risk ratio (RR) for postoperative pain-related behaviours of 0.81 (95% confidence interval (CI) 0.53 to 1.22; $P = 0.31$), ie, no evidence of benefit in taking paracetamol preoperatively (52% reporting pain in placebo versus 42% in test group). Four trials compared ibuprofen with placebo. Three trials provided useable data. One reported no statistical difference in post-operative pain experienced by the ibuprofen group and the control group for children undergoing dental treatment. Data from two trials, in patients having orthodontic separator replacement, were pooled. There was a statistically significant benefit, with regard to severity of postoperative pain, for giving ibuprofen preoperatively, with mean difference -19.12 (95% CI -29.36 to -8.87; $P = 0.0003$; moderate quality evidence) on a visual analogue scale (0 to 100) indicating a probable benefit for preoperative ibuprofen before this orthodontic procedure. However, both these trials were at high risk of bias.

Conclusions From the available evidence we cannot determine whether or not preoperative analgesics are of benefit in paediatric dentistry for procedures under local anaesthetic. There is probably a benefit in prescribing preoperative analgesics prior to orthodontic separator placement.

Commentary

Fear of pain following dental procedures can prevent parents from seeking care for their children. This review attempted to determine if administration of preoperative analgesics alleviated pain during and/or subsequent to paediatric dental procedures that are performed without adjunctive general anaesthesia or sedation.

The authors searched for RCTs. A RCT is the appropriate study design to address questions comparing different therapies. All of the pertinent databases were electronically searched. In addition, the authors hand-searched references and topic-related journals, and contacted experts in the field to identify any unpublished studies. They did not limit their search to the English language.

Two authors determined which articles met the inclusion criteria. Disagreements were resolved by discussion, rather than through a mediator. The authors were not blinded to the journal titles or authors' names.

The authors performed a thorough quality assessment of the selected studies and determined that of the included studies, three were at high risk of bias. A meta-analysis was conducted for two studies performed by the same investigator, revealing no statistically significant results for the paracetamol versus placebo. For the studies evaluating the use of ibuprofen versus placebo, the meta-analysis demonstrated statistically significant results with a mean difference of -19.12 favouring the ibuprofen; however, the confidence interval was wide [-29.36 to -8.87]. These results could have been influenced by the limited quality of the studies.

Based on the evidence presented in this review, it appears that preoperative analgesics may reduce pain after placing orthodontic separators. Due to the limitations of the included studies, it was unclear whether or not the use of pre-operative analgesics reduces pain during and/or after extractions or restorative dental procedures.

Additional studies are required in order to determine whether or not preoperative administration of analgesics is useful in reducing the sensation of pain during and/or after dental extractions and restorations. Future studies should be clear in reporting randomisation and allocation, performing and reporting sample size calculation, measuring and reporting preoperative anxiety, and reporting outcome measures based on a well-defined age range.

This paper is based on a Cochrane Review published in the Cochrane Library 2012, issue 9 (see www.thecochranelibrary.com for information). Cochrane Reviews are regularly updated as new evidence emerges and in response to feedback, and the Cochrane Library should be consulted for the most recent version of the review.

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