

Nonsteroidal Antiinflammatory Drugs and Perioperative Bleeding in Pediatric Tonsillectomy

Cardwell M, Siviter G, Smith A

Background: Nonsteroidal antiinflammatory drugs (NSAIDs) are used for pain relief after tonsillectomy in children. However, as they inhibit platelet aggregation and prolong bleeding time, they could cause increased perioperative bleeding. The overall risk remains unclear.

Objectives: The primary objective of this review was to assess the effects of NSAIDs on bleeding for pediatric tonsillectomy. There is good evidence (Kokki 2003; Romsing 1997) to show that NSAIDs are effective analgesics in children. It was not the purpose of our review to question this but rather to assess the risk of bleeding when NSAIDs are used for pain relief after pediatric tonsillectomy.

Search strategy: We searched the Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library, Issue 3, 2004); MEDLINE (inception until August 2004); EMBASE (from inception until August 2004), Current Problems (produced by the UK Medicines Control Agency); MedWatch (produced by the United States Food and Drug Administration) and the Australian Adverse Drug Reactions Bulletin in December 2001. The Cochrane Anesthesia Review Group's hand-search coordinator performed hand-searching as required. We also contacted manufacturers and researchers in the field.

Selection criteria: We included randomized controlled trials assessing NSAIDs in children up to and including 16 yr of age undergoing elective tonsillectomy or adenotonsillectomy.

Data collection and analysis: Two authors independently assessed trial quality and extracted the data. We contacted study authors when necessary for additional information. We also collected information on adverse effects from the trials.

Main results: We included 13 trials involving 955 children. All included trials compared NSAIDs with other analgesics or placebo and evaluated bleeding requiring surgical intervention. NSAIDs did not significantly alter number of perioperative bleeding events requiring surgical intervention; Peto odds ratio 1.46 (95% confidence interval, 0.49 to 4.40). Seven trials involving 471 children evaluated bleeding not requiring surgical intervention. NSAIDs did not significantly alter number of perioperative bleeding events not requiring surgical intervention; Peto odds ratio 1.23 (95% confidence interval, 0.44 to 3.43). Ten trials involving 837 children considered postoperative nausea and vomiting. There was less nausea and vomiting when NSAIDs were used as part of the analgesic regime compared with when NSAIDs were not used; odds ratio 0.40 (95% confidence interval, 0.23 to 0.72).

Reviewers' conclusions: NSAIDs did not cause any increase in bleeding requiring a return to the operating room. There was significantly less nausea and vomiting when NSAIDs were used compared to alternative analgesics.

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Interventions for Protecting Renal Function in the Perioperative Period

Zacharias M, Gilmore ICS, Herbison GP, Sivalingam P, Walker RJ

Background: A number of methods have been used to try to protect kidney function in patients undergoing surgery. These include the administration of dopamine, diuretics, calcium channel blockers, angiotensin converting enzyme (ACE) inhibitors and hydration fluids.

Objectives: For this review, we selected randomized controlled trials, which used different methods to protect renal function during the perioperative period. In examining these trials, we considered outcomes such as renal failure and mortality, as well as changes in the renal function tests, including urine output, creatinine clearance, free water clearance, fractional excretion of sodium and renal plasma flow.

Search strategy: We searched the Cochrane Central register of Controlled Trials (CENTRAL) (The Cochrane Library, Issue 4, 2004), MEDLINE (1966 to 2004) and EMBASE (1988 to 2004) and hand-searched six journals (British Journal of Anesthesia; Anesthesia & Analgesia; Anesthesiology; Annals of Surgery; Journal of Thoracic and Cardiovascular Surgery and Journal of Vascular Surgery).

Selection criteria: We selected all randomized controlled trials in an adult population undergoing surgery in which a treatment measure was used for the purpose of renal protection in the perioperative period.

Data collection and analysis: We selected 37 studies for inclusion in this review. As well as analysis of the data from all the studies, we also performed subgroup analysis for type of interventions, types of surgical procedures and those with preexisting renal dysfunction. We undertook sensitivity analysis on studies with high methodological quality.

Main results: The review included data from 37 studies, comprising a total of 1227 patients. Of these, 658 received some form of treatment and 569 acted as controls. The interventions were mostly using different drugs such as dopamine, diuretics, calcium channel blockers, ACE inhibitors, or selected hydration fluids. The results indicated that certain interventions showed some benefits, but all the results suffered from significant heterogeneity. Hence we can draw no conclusions about the effectiveness of these interventions in protecting the kidneys during surgery.

Reviewers' conclusions: There is no reliable evidence from available literature to suggest that interventions during surgery can protect the kidneys from damage. However, there is a need for more studies of high methodological quality. One particular area for further studies may be on patients with preexisting renal dysfunction undergoing surgery.

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