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[Intervention Review]

Perioperative local anaesthesia for reducing pain following tonsillectomy

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ABSTRACT

Background

Pain relief after tonsillectomy is an important part of post-operative management. Sometimes local anaesthetics are administered to the tonsillar region, but their effectiveness in relieving pain has not been formally assessed.

Objectives

To assess the effects of pre- and post-operative local anaesthesia for pain reduction following tonsillectomy.

Search methods

Cochrane Controlled Trials Register, Medline, Embase and the Oxford Pain Database. Reference lists from identified publications, including those in non-English language publications, were scanned. Date of the most recent search was September 1998.

Selection criteria

Randomised controlled trials of adults and/or children undergoing tonsillectomy alone with local anaesthetic

- (a) injected into the tonsillar region immediately prior to removal of the tonsils
- (b) injected into the tonsillar region after removal of the tonsils
- (c) sprayed or otherwise applied to the tonsillar region after removal of the tonsils

Outcome measures included the reduction in demand for post-operative analgesia, both in terms of time elapsed to request for first analgesia and of the total amount of analgesia used.

Data collection and analysis

All three reviewers extracted data independently and assessed trials for quality. Four authors were contacted to obtain information on either the method of randomisation or the type of intervention used.

Main results

Thirty trials were initially identified but only six trials met the inclusion criteria. These were all published in the English language literature between 1989 and 1997. Trials were excluded because procedures in addition to tonsillectomy were undertaken, inadequate randomisation techniques were used or because group sizes were inadequate. Of the six included studies, five involved local anaesthetic injection and one application of local anaesthetic spray. These studies used validated pain scores and measurement of supplemental analgesic intake for assessment of pain. However, some studies also included inappropriate, possibly post-hoc, outcome measures such as

'global pain scores' which may have resulted in bias. No included study showed a significant difference between intervention and control, other than for outcome measures which were felt to be inappropriate, such as the one mentioned above.

Authors' conclusions

There is no evidence that the use of perioperative local anaesthetic in patients undergoing tonsillectomy improves post-operative pain control. The trials identified were of small size and several involved the perioperative co-administration of intravenous opiates which may have masked any beneficial effect of the local anaesthetic. Further randomised controlled trials are necessary.

PLAIN LANGUAGE SUMMARY**Local anaesthetics applied during removal of the tonsils may not reduce pain following the operation**

Removal of the tonsils is one of the most common operations and adequate pain control following surgery is an important aspect of patient care. Some surgeons apply local anaesthetics (in addition to the general anaesthetic) to the area around the tonsils before, during, or after the operation in an attempt to improve pain control. The review found that this practice may not reduce pain following the operation. However, the studies included in the review had various shortcomings and further studies will be needed to allow any firm conclusions.

BACKGROUND

Surgical removal of the tonsils (tonsillectomy) is one of the most common major operations carried out on children and is increasingly undertaken in adults. Tonsillectomy is generally performed to treat chronic or recurrent throat infections, or obstructive sleep apnoea in children. Some departments advocate that the procedure be performed as a day-case (out-patient/ambulatory care) rather than with in-patient care, to reduce pressure on limited resources. Adequate analgesia allows patients to resume normal oral intake as quickly as possible. Post-operative analgesia is often given to patients both during their in-patient stay and after discharge. Some surgeons advocate the administration of local anaesthetic into the operative field. This may be performed either just before or after the tonsils are excised with the expectation that this will provide better post-operative analgesia and speed recovery. If local anaesthetic administration reduces post-operative pain, leading to a more speedy recovery, and if this intervention has few significant side-effects then its use should be more widely practised.

OBJECTIVES

To determine the effectiveness of pain relief produced by the use of perioperative local anaesthetic administration to the tonsillar region in (a) adults and (b) children undergoing tonsillectomy.

METHODS

Criteria for considering studies for this review

Types of studies

We included identified randomised controlled trials which fulfilled the criteria outlined below.

Types of participants

Adults and children undergoing tonsillectomy by any method (dissection, guillotine, laser) in any setting (in-patient, day-case) for any indication were included and considered separately. We excluded studies in which participants also underwent other procedures, such as adenoidectomy, in order to reduce bias introduced from other potential sources of pain.

Types of interventions

Tonsillectomy by any method (dissection, guillotine, laser) in any setting combined with:

- (a) injection of local anaesthetic into the tonsillar region immediately prior to removal of the tonsils
- (b) injection of local anaesthetic into the tonsillar region immediately after removal of the tonsils
- (c) spraying or other application of local anaesthetic to the tonsillar region after removal of the tonsils

Studies in which one side was 'treated' with the contra-lateral side acting as control were considered separately from those studies in which patients were randomised into 'bilateral treatment' versus 'no treatment'. 'No treatment' included administration of placebo or no administration of any substance.

Types of outcome measures

The following outcome measures were sought:

- a) reduction in the demand for post-operative analgesia, both in terms of time to first post-operative analgesic request and in terms of total amount of analgesic consumed.
- b) reduction in pain scores (using validated scales).

These outcomes were studied, where possible, up to time of discharge from the surgical unit, during the first 48 hours and at two weeks post-operatively.

Finally, we compared morbidity and mortality in the different intervention groups.

Search methods for identification of studies

Randomised controlled trials of tonsillectomy were identified. The optimum search strategy for detecting controlled trials formulated by the Cochrane Collaboration was combined with the term TONSIL* and used to search Medline from 1966 onwards. Embase, the Pain Database (Jadad 1996) and the Cochrane Controlled Trials Register were also searched using the term TONSIL*. For Embase, this was combined with appropriate terms to identify clinical trials. The initial search results were scanned by one reviewer to identify trials which loosely met the inclusion criteria, i.e. which included patients undergoing tonsillectomy with perioperative local anaesthetic administration. Reference lists from identified publications were scanned and authors contacted if details regarding methods of randomisation and patient inclusion were unclear (Valijan 1989; Arcioni 1995; Ørntoft 1994; Molliex 1996). The full text articles of the retrieved trials were then reviewed by two reviewers and the inclusion criteria applied independently. Any differences in opinion about which studies to include in the review were resolved by the third reviewer. The reviewers were blinded to the names of the journals, the authors' names and the study results when they applied the criteria for determining which studies to include in the review.

Data collection and analysis

QUALITY ASSESSMENT

The quality of all included trials was assessed blindly and independently by two reviewers. A third reviewer was asked to resolve differences in opinion. A modification of the method used by Schulz et al (Schulz 1995) was used. The selected studies were assessed for the following characteristics:

1. the adequacy of the randomisation process
2. the adequacy of study group size (more than ten patients in each group)
3. the potential for selection bias after allocation to study group, i.e. losses to follow-up and whether analysis was by intention to treat
4. whether there was blinding of the outcome assessors to the patients' study group
5. the quality of the outcome assessment, e.g. use of well validated visual analogue pain scores for adults and children.

Studies were graded A, B or C for their overall methodological quality.

A: minimisation of bias in all five categories above, i.e. (1) adequate randomisation; (2) adequate group size; (3) few losses to follow-up and intention to treat analysis; (4) blinding of outcome assessors; (5) high quality outcome assessment

B: criteria in A partially met for each category

C: one or more of the criteria in A not met

Only studies classed as 'A' were included. However, we had planned to use study quality for sensitivity analysis, i.e. to re-include studies classed as 'B' or 'C' to assess how this affected the overall result.

DATA EXTRACTION

Data from the studies were independently extracted by two reviewers using standardised data forms. Data were extracted so as to allow an intention to treat analysis. Where data were missing, the reviewers contacted the authors of the study requesting the missing data.

DATA ANALYSIS

We planned to analyse data by intention to treat.

RESULTS

Description of studies

Thirty studies were identified but only six studies fulfilled the entry criteria for study design and the measurement of clinically appropriate outcome measures.

EXCLUDED STUDIES

Trials were excluded either because of inappropriate methods of randomisation (19 trials) ([Davidson 1952](#); [Reed 1955](#); [Pande 1970](#); [Castanos 1971](#); [Raj 1986](#); [Broadman 1989](#); [Violaris 1989](#); [Boliston 1990](#); [Revilla Borjas 1990](#); [Jebeles 1991](#); [Nigam 1991](#); [Candan 1992](#); [Jebeles 1993](#); [Melchor 1994](#); [Elhakim 1995](#); [Masuda 1995](#); [Wong 1995](#); [Goldsher 1996](#); [Strub 1996](#)) because procedures in addition to tonsillectomy were carried out (13 trials) ([Reed 1955](#); [Riddington-Young 1987](#); [Broadman 1989](#); [Jebeles 1991](#); [Candan 1992](#); [Jebeles 1993](#); [Schoem 1993B](#); [Melchor 1994](#); [Stuart 1994](#); [Elhakim 1995](#); [Wong 1995](#); [Goldsher 1996](#); [Strub 1996](#)) or because of inappropriate outcome measures (6 trials) ([Pande 1970](#); [Raj 1986](#); [Bissonette 1990](#); [Boliston 1990](#); [Revilla Borjas 1990](#); [Masuda 1995](#)). One trial by [Johansen \(Johansen 1996\)](#) included only nine patients in the intervention group.

INCLUDED STUDIES

METHODS: All studies were randomised.

PARTICIPANTS: Most of the included studies involved adult patients undergoing tonsillectomy alone except for the study by [Molliex 1996](#) which included adults and children, and the study by [Arcioni 1995](#) which included children only. The study by [Bell 1997](#) examined patients following uvulopalatopharyngoplasty as well as following tonsillectomy alone. Data were presented separately, thereby enabling us to include only those undergoing tonsillectomy.

INTERVENTIONS: Local anaesthetic infiltration was used in five studies but the specific interventions in each study varied widely in terms of local anaesthetic used, the dose and time of application. The only study to examine post-operative application of local anaesthetic spray was that by [Valijan 1989](#).

OUTCOMES: Post-operative pain levels were assessed by:

(a) Visual analogue scales: pain intensity was measured using validated visual analogue scales (0-100mm) in all studies except in the one by [Schoem 1993A](#), in which a categorical scale was used. In the paediatric study by [Arcioni 1995](#), pain intensity was assessed on a validated five point Smile analogue scale. These measurements were predominantly made during the first 24 hours after surgery.

Only [Molliex 1996](#) measured pain after 36 hours and [Ørntoft 1994](#) described pain scores up to the eighth post-operative day.

(b) Need for supplemental analgesia was assessed in all studies except that by [Arcioni 1995](#). No study measured time to request for first analgesia, but instead total amounts of additional analgesic requirement were assessed. These additional agents included paracetamol, non-steroidal anti-inflammatory drugs, cocodamol (codeine phosphate and paracetamol) and morphine.

(c) morbidity and adverse events were assessed specifically in the studies by [Bell 1997](#) and [Schoem 1993A](#).

OUTCOMES - NOTES: Visual analogue scales were used at different times during the post-operative period in the various included trials precluding quantitative meta-analysis. The injected anaesthetics differed in respect to the concentrations, volumes used, sites of injection and whether agents contained adrenaline.

Risk of bias in included studies

Appropriate allocation techniques were explicit in the methods sections of [Bell 1997](#), [Molliex 1996](#) and [Schoem 1993A](#), but not in the studies by [Arcioni 1995](#), [Ørntoft 1994](#) and [Valijan 1989](#). However, use of appropriate allocation techniques was confirmed by correspondence with the authors. All included studies stated that both patients and assessors of outcome were blinded to the treatment assignment.

Effects of interventions

Data extracted from the randomised controlled trials are shown in the table of included studies.

Inappropriate measures were also applied in some of the included trials, such as measurement of mean arterial blood pressure and heart rate in the study by [Arcioni 1995](#), categorical sedation scores in the study by [Molliex 1996](#) and pain on jaw opening at 10 hours in the study by [Schoem 1993A](#). The measurement of a 'global pain score' in the study by [Molliex 1996](#), which yielded a positive result, may have been biased. This 'global pain score' was calculated by averaging the measurements for the whole of the first post-operative day - results, which, when analysed by themselves, did not show a positive result.

PAIN ASSESSMENT: No statistically significant differences were shown between placebo and active interventions except in the study by [Molliex 1996](#) in which a difference was shown in isolation for the 'global pain score' for the first 24 hours. It is our impression that this was a post-hoc outcome measure and should be disregarded.

DEMAND FOR ANALGESIA: The need for supplemental analgesia was reported in all studies except in the study by [Arcioni 1995](#). None of the studies showed a statistically significant difference between the treatment and placebo groups. Although results were not analysed formally in the study by [Valijan 1989](#), no difference between control and intervention groups was apparent.

ADVERSE EFFECTS: These were monitored specifically in the studies by [Bell 1997](#) and [Schoem 1993A](#). [Bell 1997](#) noted that one patient from the intervention group suffered nausea and vomiting which delayed discharge from the recovery room. There were no reported adverse events in [Schoem 1993A](#). [Valijan 1989](#) noted that one patient from each group suffered stinging and nausea. Two patients each in the studies by [Ørntoft 1994](#) and [Molliex 1996](#) suffered

post-operative bleeding, which is a recognised complication of the procedure of tonsillectomy.

DISCUSSION

SETTING: The studies in this review included patients undergoing tonsillectomy. No study reported on the exact method of tonsil excision i.e. whether by laser, diathermy or standard dissection.

PARTICIPANTS: The largest study included 78 patients (Bell 1997) and the smallest 20 (Arcioni 1995). Therefore, the smallest group for each arm of the study by Arcioni (intervention or control) was ten. This study is unlikely to have been statistically powerful enough to detect a clinically significant difference between interventions.

INTERVENTIONS: Of the six included trials, no two used identical interventional arms. Five trials examined the use of injected local anaesthetic and only one trial involved the use of local anaesthetic spray (benzylamine). The injected local anaesthetic was bupivacaine (Marcain) in most cases, but different concentrations were used (0.125%, 0.25% or 0.5%). Adrenaline (1:200,000) was used concurrently with bupivacaine in only two studies (Molliex 1996; Bell 1997). Bupivacaine is generally regarded as a long acting local anaesthetic, the effect of which may be prolonged by the addition of adrenaline.

Variability existed in the time of infiltration, i.e. whether before or after removal of the tonsils but no study examined the use of pre- AND post-removal infiltration versus control. This combination may be the minimum required to produce sustained neural afferent blockade at the time of excision and afterwards, when tissue trauma and inflammation are still capable of quickly producing sensitisation and hyperalgesia. Or, it may still be inadequate, even if further augmented by opioid analgesics and anti-inflammatory drugs, to achieve lasting effects upon pain and analgesic intake.

Control groups differed in that either inactive controls (no injection) or active controls (injection of normal saline) were used.

Sites of injection were not well described in most studies. Bell 1997 used the term 'glossopharyngeal nerve block'. This description is not helpful in the clinical setting. Only Arcioni 1995 and Schoem 1993A clearly describe exact sites of injection.

OUTCOMES: No study demonstrated efficacy of local anaesthetics in reducing pain or need for supplemental analgesia in patients undergoing tonsillectomy.

CONFOUNDING FACTORS: Perioperative opiates were administered to patients in the studies by Bell 1997, Molliex 1996, Ørntoft 1994 and Valijan 1989. It is thought that opiates of long half-life such as morphine may mask any beneficial effects of local anaesthetics and this could be the reason why no benefit was shown in trials in which this drug was administered. However, the short acting opiate fentanyl may not have this effect and was used in the studies by Molliex 1996 and Ørntoft 1994. Product information states that the peak effect of fentanyl is 30 minutes for a dose of 0.75-1.5 ug/kg, although the total duration of effect may be up to four hours. Therefore, its effect should have largely worn off by the time the patient entered the recovery room.

AUTHORS' CONCLUSIONS

Implications for practice

The use of currently available perioperative local anaesthetics in tonsillectomy for improved pain relief cannot be supported unless it is in the context of a large randomised, double-blind trial.

Implications for research

A multi-centre trial is required in order to recruit enough patients to guarantee statistical reliability. A trial in this field should fulfill the following additional criteria:

1. clearly define the inclusion criteria for adults and children
2. investigate the effects of tonsillectomy and adeno-tonsillectomy separately
3. use a standardised anaesthetic protocol
4. specify the randomisation process and attempt to conceal allocation of patients to study groups
5. use validated pain scales and analgesic consumption as indicators of post-operative pain

Accordingly, the authors have drafted a protocol to study pre- and post-operative tonsillar infiltration with local anaesthetic and are now awaiting multi-centre ethical board approval.

ACKNOWLEDGEMENTS

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CHARACTERISTICS OF STUDIES
Characteristics of included studies [ordered by study ID]

Arcioni 1995

Methods	Random allocation by computer-generated numbers.
Participants	20 children; age range: five to ten years; undergoing tonsillectomy alone.
Interventions	Pre-operative infiltration of 1% lignocaine with 0.125% bupivacaine into the anterior and posterior tonsillar pillars and pericapsular space. The control group had no active intervention.
Outcomes	1. Mean arterial blood pressure; 2. heart rate; 3. visual analogue pain scores 2, 6 and 24 h post-operatively. Blood pressure and heart rate were also measured on induction.
Notes	Correspondence with the author confirmed adequate randomisation and tonsillectomy as sole procedure. No opiates given per-operatively.

Risk of bias
Perioperative local anaesthesia for reducing pain following tonsillectomy (Review)

Arcioni 1995 (Continued)

Bias	Authors' judgement	Support for judgement
Allocation concealment?	Low risk	A - Adequate

Bell 1997

Methods	Randomisation by sealed envelope.
Participants	78 adult patients undergoing tonsillectomy alone.
Interventions	Pre-operative bupivacaine 'glossopharyngeal nerve block' (0.5% with 1:200000 adrenaline); 5 ml to each tonsil in patients > 50 kg, and 4 ml to each tonsil in patients 40-50 kg by an anaesthetist. The control group had no active intervention.
Outcomes	1. Visual analogue pain scores at rest and during swallowing at 10 min, 4 h, and on the next post-operative day; 2. visual analogue pain score after drinking on post-operative days 2-6; 3. requirement for supplemental analgesia; 4. adverse events.
Notes	Morphine given pre-operatively (0.1 mg/kg- max 10 mg).

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment?	Low risk	A - Adequate

Molliex 1996

Methods	Randomisation by sealed envelopes.
Participants	68 adults and children undergoing tonsillectomy alone.
Interventions	Group 1: Pre-operative bupivacaine infiltration (0.25% with 1:200000 adrenaline); Group 2: post-operative bupivacaine infiltration (0.25% with 1:200000 adrenaline); Group 3: pre-operative normal saline infiltration (with 1:200000 adrenaline).
Outcomes	1. Visual analogue pain score at 1, 5, 9, 13, 17, and 21 h post-operatively and daily average 'global pain score'; 2. pain at rest and swallowing at 34-36 h post-operatively; 3. need for supplemental analgesia at 0-9 h and 9-24 h post-operatively; 4. categorical sedation score in the first 9 post-operative hours; 5. duration of surgery.
Notes	Correspondence with author confirmed adequate randomisation. Fentanyl (3 ug/kg) given pre-operatively. Data from three patients dropped - two because of bleeding and one because of data unavailability.

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment?	Low risk	A - Adequate

Schoem 1993A

Methods	Central randomisation by hospital pharmacy.
Participants	51 adult patients undergoing tonsillectomy alone.
Interventions	Glossopharyngeal nerve block at superior and inferior tonsillar poles with post-operative bupivacaine infiltration (1.8 ml of 0.5% bupivacaine). Control group: post-operative infiltration of normal saline.
Outcomes	1. Categorical pain scale at 2, 6, and 10 h post-operatively; 2. oral intake over 10 h; 3. need for supplemental analgesia; 4. pain on jaw opening at 10 h.
Notes	Procedure performed under local anaesthetic comprising 1% xylocaine with 1:100000 adrenaline. Tabulations of results inaccurate - y axis labelled as 'no. of hours' rather than 'no. of patients'. Discarded data - "a few patients in the placebo group improperly responded" and their data discarded but not accounted for.

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment?	Low risk	A - Adequate

Valijan 1989

Methods	Randomisation using code numbers which were broken at the end of the study.
Participants	31 adult patients undergoing tonsillectomy alone.
Interventions	Benzydamine spray (0.15% w/v) given post-operatively 3-hourly for 24 h with up to 4 sprays administered. Control group: placebo spray.
Outcomes	1. Visual analogue pain scale at 8, 16 and 24 h post-operatively; 2. need for supplemental analgesia.
Notes	Correspondence with the author confirmed randomisation. Morphine (10 mg) given intra-operatively. Two patients lost- no intention to treat analysis. Adverse events reported - one from each group-nausea and stinging.

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment?	Low risk	A - Adequate

Ørntoft 1994

Methods	Randomisation using code numbers (for randomising patients) and sealed envelopes (for determining pre- or post-operative administration of anaesthetic).
Participants	36 adult patients undergoing tonsillectomy alone.

Ørntoft 1994 (Continued)

Interventions	Group 1: pre-operative bupivacaine infiltration (0.25%, 4 ml per tonsil); Group 2: post-operative bupivacaine infiltration (0.25%, 4 ml per tonsil); Group 3: pre-operative normal saline infiltration (4 ml per tonsil).	
Outcomes	1. Visual analogue pain score at rest and on drinking at 4 h post-operatively and on post-operative days 1, 2, 3 and 8; 2. need for supplemental analgesia.	
Notes	Correspondence with author confirmed adequate randomisation. Fentanyl (1 ug/kg) administered at the end of the operation. Three patients lost to follow-up and not accounted for - two because of bleeding; one because of inadvertent administration of fentanyl pre-operatively.	
<i>Risk of bias</i>		
Bias	Authors' judgement	Support for judgement
Allocation concealment?	Low risk	A - Adequate

Characteristics of excluded studies [ordered by study ID]

Study	Reason for exclusion
Bissonette 1990	Outcomes: Invalid pain scores used by nurses
Boliston 1990	Allocation: Quasi-randomised, alternate patients Intervention: Lignocaine with adrenaline versus unclear control Outcomes: No measure of post-op pain or post-op analgesia
Broadman 1989	Allocation: Randomised, uncertain how Participants: Children undergoing tonsillectomy or adeno-tonsillectomy with or without ventilation tubes
Candan 1992	Allocation: Randomisation, if done, unclear Participants: Children undergoing tonsillectomy and adeno-tonsillectomy with or without ventilation tube insertion
Castanos 1971	Allocation: Non-randomised observational study
Davidson 1952	Allocation: Non-randomised observational study
Elhakim 1995	Allocation: Randomised, uncertain how Participants: Children undergoing tonsillectomy or adeno-tonsillectomy
Goldsher 1996	Allocation: Randomised, uncertain how Participants: Children and adults undergoing tonsillectomy or adeno-tonsillectomy
Jebeles 1991	Allocation: Randomised, uncertain how Participants: Children undergoing tonsillectomy or adeno-tonsillectomy
Jebeles 1993	Allocation: Randomised, uncertain how Participants: Children undergoing tonsillectomy or adeno-tonsillectomy
Johansen 1996	Participants: Group size inadequate (<10)
Masuda 1995	Allocation: Randomised, uncertain how

Study	Reason for exclusion
	Outcomes: Per-operative analgesia; no measure of post-operative pain or post-operative analgesia
Melchor 1994	Allocation: Randomised, uncertain how Participants: Children (2 to 13 years) undergoing tonsillectomy or adeno-tonsillectomy
Nigam 1991	Allocation: Randomised by operating surgeon, method unclear
Pande 1970	Allocation: Unclear randomisation Outcomes: Some invalid outcome measures Interventions: No local anaesthetic spray administered on day of surgery
Raj 1986	Allocation: Unclear randomisation Outcomes: Post hoc outcome measure used; more than three times need for supplemental analgesia
Reed 1955	Allocation: Quasi-randomisation by alternation Participants: additional procedures to tonsillectomy
Revilla Borjas 1990	Allocation: Quasi-randomised, alternate patients Outcomes: No measure of post-operative pain or post-operative analgesia
Riddington-Young1987	Participants: Additional procedures to tonsillectomy
Schoem 1993B	Participants: Children undergoing tonsillectomy and adeno-tonsillectomy
Strub 1996	Allocation: Randomised, uncertain how Participants: Children undergoing tonsillectomy or adeno-tonsillectomy
Stuart 1994	Participants: Children (2 to 12) undergoing adeno-tonsillectomy
Violaris 1989	Allocation: Quasi-randomised, alternating sides
Wong 1995	Allocation: Randomised 'by means of code numbers' Participants: Children undergoing adeno-tonsillectomy

FEEDBACK

Likar 2000

Summary

I have a comment concerning your meta-analysis about local anaesthetics in tonsillectomies. You have not mentioned our study: Likar R, Morianz U, Wieser S, Schabus H, Spacek A, Koppert W, Sittl R. Pre-emptive analgesia with ropivacaine in adult tonsillectomy. Anesthesist 1999 Jun; 48 (6): 373-8.

Contributors

Rudolf Likar

Cyna 2000

Summary

I am writing regarding further information on one of the trials included in a recent review published under the ENT editorial review group in the Cochrane library regarding Hollis LJ, Burton MJ, Millar JM. Perioperative local anaesthesia for reducing pain following tonsillectomy (Cochrane Review). In: The Cochrane Library, Issue 4, 2000. Oxford: Update Software.

Following the trial (Bell KR, Cyna AM, Lawler KM, Sinclair C, Kelly PJ, Millar F, Flood LM. The effect of glossopharyngeal nerve block on pain after elective adult tonsillectomy and uvulopalatoplasty. Anaesthesia 1997;52:586-602) we learned of a patient's death who was in the local

anaesthetic group of our trial The patient died of cervical osteomyelitis 8 weeks postoperatively. The relevance of this to local anaesthetic infiltration is unclear but details of this case were published:

Cyna AM. Bell KR. Flood LM. Cervical osteomyelitis following tonsillectomy. *Anaesthesia*. 52(11):1084-7, 1997 Nov. 98067983

I believe the outcome of this case needs to be noted in the review and taken into consideration if further trials of peroperative tonsillectomy with local anaesthetic infiltration are planned.

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WHAT'S NEW

Date	Event	Description
26 October 2008	Amended	Converted to new review format.

HISTORY

Protocol first published: Issue 2, 1999

Review first published: Issue 4, 1999

Date	Event	Description
2 June 1999	New citation required and conclusions have changed	Substantive amendment

CONTRIBUTIONS OF AUTHORS

LANCE HOLLIS: protocol development, searching for trials, quality assessment of trials, data extraction, review development.

MARTIN BURTON: protocol development, searching for trials, quality assessment of trials, data extraction, review development.

JEAN MILLAR: quality assessment of trials, data extraction.

DECLARATIONS OF INTEREST

None known.

INDEX TERMS

Medical Subject Headings (MeSH)

*Anesthesia, Local; *Tonsillectomy; Pain, Postoperative [*prevention & control]

MeSH check words

Humans