

CADTH RAPID RESPONSE REPORT: REFERENCE LIST

Lidocaine 2% with Epinephrine versus Lidocaine 1% with Epinephrine for Patients Requiring Local Anesthesia: Clinical Effectiveness and Guidelines

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Research Questions

1. What is the comparative clinical effectiveness of lidocaine 2% with epinephrine versus lidocaine 1% with epinephrine for patients requiring local anesthesia?
2. What are the evidence-based guidelines regarding the use of lidocaine (1% or 2%) with epinephrine for the use of patients requiring local anesthesia?

Key Findings

Two randomized controlled trials were identified regarding the comparative clinical effectiveness of lidocaine 2% with epinephrine versus lidocaine 1% with epinephrine for patients requiring local anesthesia. In addition, no relevant evidence-based guidelines were identified.

Methods

A limited literature search was conducted by an information specialist on key resources including Ovid Medline, the Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were lidocaine and epinephrine. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2014 and April 30, 2019. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

Population	Patients requiring local anesthesia
Intervention	Injected lidocaine 2% with epinephrine
Comparator	Q1: Injected lidocaine 1% with epinephrine Q2: No comparator
Outcomes	Q1: Clinical effectiveness (benefit/harm), safety Q2: Guidelines
Study Designs	Health technology assessments , systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, evidence-based guidelines

Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and evidence-based guidelines.

Two randomized controlled trials were identified regarding the comparative clinical effectiveness of lidocaine 2% with epinephrine versus lidocaine 1% with epinephrine for patients requiring local anesthesia. No relevant health technology assessments, systematic reviews, meta-analyses, or evidence-based guidelines were identified.

Additional references of potential interest are provided in the appendix.

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

No literature identified.

Randomized Controlled Trials

1. Phero JA, Warren VT, Fisher AG, et al. Buffered 1% lidocaine with epinephrine can be as effective as nonbuffered 2% lidocaine with epinephrine for maxillary field block. *J Oral Maxillofac Surg.* 2017 Oct;75(10):2071-2075.
[PubMed: PM28419841](#)
2. Warren VT, Fisher AG, Rivera EM, et al. Buffered 1% lidocaine with epinephrine is as effective as non-buffered 2% lidocaine with epinephrine for mandibular nerve block. *J Oral Maxillofac Surg.* 2017 Jul;75(7):1363-1366.
[PubMed: PM28153755](#)

Non-Randomized Studies

No literature identified.

Guidelines and Recommendations

No literature identified.

Appendix — Further Information

Systematic Reviews and Meta-analyses – Unclear if 1% Lidocaine is Included

3. St George G, Morgan A, Meechan J, et al. Injectable local anaesthetic agents for dental anaesthesia. *Cochrane Database Syst Rev*. 2018 07 10;7:CD006487.
[PubMed: PM29990391](#)

Non-Randomized Studies

Alternative Comparator – Other Concentration of Lidocaine

4. Ping B, Kiattavorncharoen S, Durward C, Im P, Saengsiravin C, Wongsirichat N. Hemodynamic changes associated with a novel concentration of lidocaine HCl for impacted lower third molar surgery. *J Dent Anesth Pain Med*. 2015 Sep;15(3):121-128.
[PubMed: PM28879268](#)
5. Ping B, Kiattavorncharoen S, Saengsiravin C, Im P, Durward C, Wongsirichat N. The efficacy of an elevated concentration of lidocaine HCl in impacted lower third molar surgery. *J Dent Anesth Pain Med*. 2015 Jun;15(2):69-76.
[PubMed: PM28879261](#)

Clinical Practice Guidelines - Methods Not Systematic

6. Kouba DJ, LoPiccolo MC, Alam M, et al. Guidelines for the use of local anesthesia in office-based dermatologic surgery. *J Am Acad Dermatol*. Vol 74. 2016/03/10 ed2016: Accessed 2019 May 2.
<https://www.ncbi.nlm.nih.gov/pubmed/26951939>