

## **Clinical Inquiries**

### FROM THE FAMILY PRACTICE INQUIRIES NETWORK

Does Lidocaine-Prilocaine Cream (EMLA) Decrease the Pain of Neonatal Circumcision?

#### Searchable Question

In newborn boys undergoing circumcision, is lidocaine-prilocaine cream (EMLA) more effective in reducing pain than another anesthesia or placebo?

#### Evidence-Based Answer

EMLA cream reduces the pain experienced by newborns during circumcision compared with placebo. [Strength of recommendation: A, based on a systematic review of randomized controlled trials (RCTs)]. However, dorsal penile nerve block and ring block are more effective than EMLA cream or placebo in reducing the pain response during circumcision. [Strength of recommendation: A, based on a single RCT]

#### Evidence Summary

A well-conducted systematic review<sup>1</sup> of three RCTs with 89 patients demonstrated that the increase in heart rate--a primary marker of pain response in newborns--is 12 to 27 beats per minute lower in infants undergoing circumcision when they are anesthetized with topical EMLA, compared with placebo. [Evidence level 1A]

A well-designed and adequately powered, single-blinded RCT<sup>2</sup> comparing ring block, dorsal penile nerve block, and EMLA cream with placebo demonstrated that heart rate changes and percentage of time spent crying during circumcision are lowest in newborns anesthetized with ring block or dorsal penile nerve block, and highest in those receiving placebo (see accompanying figure). [Evidence level 1B: RCT]

Furthermore, heart rate changes and the percentage of time spent crying in newborns randomized to topical anesthesia with EMLA cream were lower than with placebo but significantly greater than with ring block or dorsal penile nerve block. The average length of time to administer anesthesia was 70 seconds in the topical group (in addition to the 90-minute wait for EMLA penetration) and less than 50 seconds in the infiltration groups. On average, newborns in the infiltration groups stopped crying 90 seconds after the block was placed, and those in the topical group stopped crying 60 seconds after drug application. The average time for the circumcision procedure was 3.5 minutes in all groups.

### Heart Rate Change from Baseline

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**FIGURE.**

### Recommendations from Others

The American Academy of Pediatrics (AAP) states in its 1999 policy statement<sup>3</sup> that analgesia is safe and effective in reducing the procedural pain associated with circumcision; therefore, if a decision for circumcision is made, procedural analgesia should be provided. [Evidence level 5: evidence-linked policy statement]

### Clinical Commentary

The evidence is compelling that anesthesia should be provided to newborns undergoing circumcision. Although topical EMLA cream is better than no anesthesia, ring block and dorsal penile nerve block are more effective. Physicians should consider the logistic issues involved in the use of EMLA cream, with its 90-minute application and wait time, compared with lidocaine infiltration, which is readily available and results in immediate anesthesia with minimal additional distress to the infant.

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### REFERENCES

1. Taddio A, Ohlsson K, Ohlsson A. Lidocaine-prilocaine cream for analgesia during circumcision in newborn boys. *Cochrane Database Syst Rev* 2003;(1):CD000496.
2. Lander J, Brady-Fryer B, Metcalfe JB, Nazarali S, Muttitt S. Comparison of ring block, dorsal penile nerve block, and topical anesthesia for neonatal circumcision: a randomized controlled trial. *JAMA* 1997;278:2157-62.
3. Circumcision policy statement. American Academy of Pediatrics. Task Force on Circumcision. *Pediatrics* 1999;103:686-93.

Clinical Inquiries provide answers to questions submitted by practicing family physicians to the Family Practice Inquiries Network (FPIN). Members of the network select questions based on their relevance to family medicine. Answers are drawn from an approved set of evidence-based resources and undergo peer review. The strength of recommendations and the level of evidence for individual studies are rated using criteria developed by the Evidence-Based Medicine Working Group ([http://www.cebm.net/levels\\_of\\_evidence.asp](http://www.cebm.net/levels_of_evidence.asp)).

This series of Clinical Inquiries is coordinated for American Family Physician by John Epling, M.D., State University of New York Upstate Medical University, Syracuse, N.Y. The complete database of evidence-based questions and answers is copyrighted by FPIN.

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