



TITLE: Codeine Compared with Other Opioids for Pain Relief in Pediatric Patients: Comparative Clinical Effectiveness, Safety, and Guidelines

DATE: 19 February 2013

RESEARCH QUESTIONS

1. What is the evidence for the clinical effectiveness of codeine compared with other opioids for pain relief in pediatric patients?
2. What is the evidence for the safety of codeine compared with other opioids when administered to pediatric patients?
3. What are the evidence-based guidelines regarding the use of codeine compared with other opioids for pain relief in pediatric patients?

KEY MESSAGE

Two non-randomized studies were identified regarding the use of codeine compared with other opioids for pain relief in pediatric patients. No evidence-based guidelines were identified regarding the use of codeine compared with other opioids for pain relief in pediatric patients.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library (2013, Issue 1), University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. 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, 2008 and February 5, 2013. Internet links were provided, where available.

The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

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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 non-randomized studies were identified regarding the use of codeine compared with other opioids for pain relief in pediatric patients. 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.

OVERALL SUMMARY OF FINDINGS

One non-randomized study¹ examined the use of codeine and hydrocodone for pain management following adenotonsillectomy for children with obstructive sleep apnea. The authors suggested that prescribers be aware that the depressive effects of opioids on the central nervous system may further decrease oxygen saturation levels in children whose oxygen levels are already compromised.

The safety and efficacy of continuous morphine infusion was compared with codeine plus acetaminophen for pain management in pediatric patients following cranial surgery in a non-randomized study.² The authors determined there was no statistically significant difference in pain control between the two regimens, however, there were significantly more episodes of nausea reported in the morphine group on the first day after surgery. No other significant adverse events were reported for either treatment group.

No evidence-based guidelines were identified regarding the use of codeine compared with other opioids for pain relief in pediatric patients.

REFERENCES SUMMARIZED

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

1. Khetani JD, Madadi P, Sommer DD, Reddy D, Sistonen J, Ross CJ, et al. Apnea and oxygen desaturations in children treated with opioids after adenotonsillectomy for obstructive sleep apnea syndrome: a prospective pilot study. *Paediatr Drugs*. 2012 Dec 1;14(6):411-5.
[PubMed: PM23013460](#)
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[PubMed: PM20306057](#)

Guidelines and Recommendations

No literature identified.

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APPENDIX – FURTHER INFORMATION:

Randomized Controlled Trials – non-opioid comparators

3. Drendel AL, Gorelick MH, Weisman SJ, Lyon R, Brousseau DC, Kim MK. A randomized clinical trial of ibuprofen versus acetaminophen with codeine for acute pediatric arm fracture pain. *Ann Emerg Med.* 2009 Oct;54(4):553-60.
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[PubMed: PM19624576](#)

Non-Randomized Studies – non-opioid comparators

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[PubMed: PM22706458](#)

Additional References

6. Codeine-containing pain relief in children: safety review initiated following post-surgical fatalities in ultra-rapid metabolisers. *Drug Safety Update* [Internet]. 2012 Dec [cited 2013 Feb 6];6(5). Available from:
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8. Sadhasivam S, Myer CM III. Preventing opioid-related deaths in children undergoing surgery. *Pain Med.* 2012 Jul;13(7):982-3.
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<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2988526>
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10. Tremlett M, Anderson BJ, Wolf A. Pro-con debate: is codeine a drug that still has a useful role in pediatric practice? *Paediatr Anaesth.* 2010 Feb;20(2):183-94.
[PubMed: PM20059720](#)
11. Madadi P, Koren G. Pharmacogenetic insights into codeine analgesia: implications to pediatric codeine use. *Pharmacogenomics.* 2008 Sep;9(9):1267-84.
[PubMed: PM18781855](#)