TITLE: Intranasal Versus Intravenous Administration of Anxiolytic or Analgesic Medications: Comparative Clinical Effectiveness

DATE: 21 January 2014

RESEARCH QUESTIONS

1. What is the clinical effectiveness of intranasal versus intravenous administration of anxiolytic medications in the pre-hospital or emergency setting?

2. What is the clinical effectiveness of intranasal versus intravenous administration of analgesic medications in the pre-hospital or emergency setting?

KEY MESSAGE

Three systematic reviews, three randomized controlled trials, and one non-randomized study were identified regarding intranasal versus intravenous administration of anxiolytic or analgesic medications in the pre-hospital or emergency setting.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library (2013, Issue 12), 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, 2009 and January 13, 2014. 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.
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 and non-randomized studies.

Three systematic reviews, three randomized controlled trials, and one non-randomized study were identified regarding intranasal versus intravenous administration of anxiolytic or analgesic medications in the pre-hospital or emergency setting. No relevant health technology assessments were identified. Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

Intranasal Anxiolytics

Three randomized controlled trials\(^4\)-\(^6\) compared the effectiveness of intranasal (IN) and intravenous (IV) anxiolytics for the treatment of seizures in children. In two studies,\(^4\),\(^5\) children presenting to the emergency department (ED) with seizure were treated with IN midazolam or IV diazepam. One study\(^4\) reported that time to seizure control was significantly shorter in the midazolam group (when considering the time to establish an IV for the diazepam group) whereas in the second study,\(^5\) seizures were controlled more quickly with IV diazepam but the overall time from hospital arrival to seizure control was shorter with IN midazolam. IN midazolam and IV diazepam were found to be equally effective with no significant adverse events reported in either group.\(^5\) In a study\(^6\) comparing different routes of administration for lorazepam, IN lorazepam was found to be non-inferior to IV lorazepam for the termination of seizures in children presenting to the ED. No information was identified regarding the use of intranasal anxiolytics for adult patients.

Intranasal Analgesics

Three systematic reviews\(^1\)-\(^3\) examined the use of IN analgesics for pain management. In the ED, IN fentanyl demonstrated analgesic non-inferiority to IV morphine for moderate to severe pain.\(^1\) In the pre-hospital setting, IN fentanyl was found to be both inferior and non-inferior as compared to IV morphine and demonstrated a significant analgesic effect when compared with methoxyflurane.\(^1\)

When used for the management of acute pain following long bone fracture in children, IN fentanyl showed no significant analgesic difference as compared to IV morphine.\(^2\) When used for children, the pain scores following administration of IN fentanyl were similar or better than those reported following administration of other opioids.\(^3\) It was unclear whether these reviews focused on the pre-hospital or ED setting.\(^2\),\(^3\)

One non-randomized study\(^7\) compared IN diamorphone with IV morphine in a pediatric ED. Children who received IN diamorphone were significantly less likely to require additional analgesia than those who received IV morphine. The administration of co-analgesia reduced the requirement for additional analgesia in both groups.
REFERENCES SUMMARIZED

Health Technology Assessments
No literature identified.

Systematic Reviews and Meta-analyses

*Intranasal anxiolytics*
No literature identified.

*Intranasal analgesics*


Randomized Controlled Trials

*Intranasal anxiolytics*


*Intranasal analgesics*
No literature identified.
Non-Randomized Studies

*Intranasal anxiolytics*
No literature identified.

*Intranasal analgesics*


PREPARED BY:
Canadian Agency for Drugs and Technologies in Health
Tel: 1-866-898-8439
www.cadth.ca
APPENDIX – FURTHER INFORMATION:

Non-Randomized Studies – non-comparative

Intranasal analgesics


Review Articles

Intranasal anxiolytics


Additional References

**Intranasal anxiolytics**


**Intranasal analgesic**
