Canadian Agency for Drugs and Technologies in Health

RAPID RESPONSE REPORT: SUMMARY WITH CRITICAL APPRAISAL

TITLE: Patient-Controlled Analgesia for Acute Injury Transfers: A Review of the Clinical Effectiveness, Safety, and Guidelines

DATE: 11 August 2014

CONTEXT AND POLICY ISSUES

Patient-controlled analgesia (PCA) refers to the use of a medical device that delivers defined doses of pain medication to a patient on demand.[1] Specific doses are programmed by a health care professional, and the device is also programmed to limit the administration of each dose or a cumulative amount of drug within certain time intervals.[1] PCA typically involves intravenous opioid delivery, but may include other drugs (such as non-steroidal anti-inflammatory drugs or local anaesthesia) or other routes of administration (for example, subcutaneous, transdermal, pulmonary or nasal administration).[1] It is commonly used for post-operative pain,[1] but PCA for acute pain management in the hospital emergency department has also been studied.[2,3]

It has been documented that acute pain is not adequately controlled in patients in pre-hospital emergency care settings.[4,5] This observation of suboptimal pain management may extend to situations in which patients who require transfer from a rural or remote hospital to a higher level of care are in emergency vehicles for up to several hours. In some jurisdictions, ambulances are staffed by paramedics with basic life support training; doctors and nurses are not available to administer analgesics. Therefore, there is a potential role for PCA to provide sufficient acute pain management in this setting. The purpose of this report is to review the evidence of the clinical effectiveness and guidelines regarding PCA for patients with acute injury during transfer to a higher level of care.

RESEARCH QUESTIONS

1. What is the clinical effectiveness of patient-controlled analgesia for patients with acute injury during transfer to a higher level of care?

2. What is the clinical evidence on the safety and harms of patient-controlled analgesia for patients with acute injury during transfer to a higher level of care?

3. What are the evidence-based guidelines regarding pain management for patients with acute injury during transfer to a higher level of care?

KEY FINDINGS

No relevant clinical evidence or guidelines regarding patient-controlled analgesia for patients with acute injury during transfer to a higher level of care were identified.

METHODS

Literature Search Strategy

A limited literature search was conducted on key resources including PubMed, The Cochrane Library (2014, Issue 7), 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 July 10, 2014.

Selection Criteria and Methods

One reviewer screened citations and selected studies. In the first level of screening, titles and abstracts were reviewed and potentially relevant articles were retrieved and assessed for inclusion. The final selection of full-text articles was based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

Population	Adults with acute injury or trauma (e.g., unstable fractures) requiring transfer to a higher level of care (particularly in rural/remote settings where transport by ground is the only option requiring more than two hours of travel time).
Intervention	Patient-controlled analgesia (any drug combination).
Comparator	• No comparator • Models requiring a nurse or doctor escort to assess pain and administer narcotic during transfer
Outcomes	Q1 and Q2: Pain control, physiological stability, avoidance of respiratory depression, safe transfer to target facility. Q3: Guidelines.
Study Designs	Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, evidence-based guidelines.

Exclusion Criteria

Articles were excluded if they did not meet the selection criteria outlined in Table 1, they were duplicate publications, or were published prior to 2009.

SUMMARY OF EVIDENCE

Quantity of Research Available

A total of 387 citations were identified in the literature search. Following screening of titles and abstracts, 373 citations were excluded and 14 potentially relevant reports from the electronic search were retrieved for full-text review. No potentially relevant publications were retrieved from the grey literature search. Of the potentially relevant articles, all 14 publications were excluded for various reasons; seven studies evaluated an irrelevant intervention, four studies and one clinical practice guideline focused on an emergency department or trauma centre setting, and two publications were review articles. Appendix 1 describes the PRISMA flowchart of the study selection.

Summary of Findings

No relevant literature regarding PCA for patients with acute injury during transfer to a higher level of care was identified; therefore, a summary of findings cannot be provided.

CONCLUSIONS AND IMPLICATIONS FOR DECISION OR POLICY MAKING

No relevant clinical evidence or guidelines regarding PCA for patients with acute injury during transfer to a higher level of care were identified; therefore, no review of the evidence can be provided. The potential role of PCA to provide sufficient acute pain management during patient transport to a higher level of care remains unclear.

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APPENDIX 1: Selection of Included Studies