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CADTH RAPID RESPONSE REPORT: SUMMARY OF ABSTRACTS

Atropine for Organophosphate Poisoning in the Pre-Hospital Setting: Clinical Effectiveness and Guidelines

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About CADTH: CADTH is an independent, not-for-profit organization responsible for providing Canada's health care decision-makers with objective evidence to help make informed decisions about the optimal use of drugs, medical devices, diagnostics, and procedures in our health care system.

Funding: CADTH receives funding from Canada's federal, provincial, and territorial governments, with the exception of Quebec.

Research Questions

1. What is the clinical effectiveness of various doses of atropine for pre-hospital treatment of organophosphate poisoning?
2. What are the evidence-based guidelines regarding pre-hospital treatment of patients experiencing organophosphate poisoning?

Key Findings

No relevant literature was identified regarding the clinical effectiveness of various doses of atropine for pre-hospital treatment of organophosphate. Additionally, no evidence-based guidelines were found regarding pre-hospital treatment of patients experiencing organophosphate poisoning.

Methods

A limited literature search was conducted by an information specialist on key resources including PubMed, 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 atropine and organophosphate poisoning. 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 Jan 1, 2014 and May 14, 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 experiencing organophosphate poisoning in the pre-hospital setting
Intervention	Q1: Atropine Q2: Treatment for organophosphate poisoning
Comparator	Q1: Other doses of atropine; other interventions for organophosphate poisoning Q2: No comparator
Outcomes	Q1: Clinical effectiveness (e.g., mortality, respiratory failure, heart injury, liver injury, brain injury, poisoning complications, adverse events) Q2: Best practice recommendations, guidelines
Study Designs	Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, and 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.

No relevant literature, including evidence-based guidelines, was identified regarding the pre-hospital treatment of organophosphate poisoning and the clinical effectiveness of various atropine doses in pre-hospital settings.

References of potential interest are provided in the appendix.

Overall Summary of Findings

No relevant literature was identified regarding the clinical effectiveness of atropine in various doses for organophosphate poisoning in a pre-hospital setting. No evidence-based guidelines were identified regarding the treatment of organophosphate poisoning in a pre-hospital setting.

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

No literature identified.

Guidelines and Recommendations

No literature identified.

Appendix — Further Information

Non-Randomized Studies

Pre-Hospital Setting

1. Karakus A, Celik MM, Karcioglu M, Tuzcu K, Erden ES, Zeren C. Cases of organophosphate poisoning treated with high-dose of atropine in an intensive care unit and the novel treatment approaches. *Toxicol Ind Health*. 2014 Jun;30(5):421-425. PubMed: PM23012340

Alternative Intervention

2. Liu HX, Liu CF, Yang WH. Clinical study of continuous micropump infusion of atropine and pralidoxime chloride for treatment of severe acute organophosphorus insecticide poisoning. *J Chin Med Assoc*. 2015 Dec;78(12):709-713. PubMed: PM26441220

Review Articles

3. Bajracharya SR, Prasad PN, Ghimire R. Management of organophosphorus poisoning. *J Nepal Health Res Council*. 2016 Sep;14(34):131-138. PubMed: PM28327676