Systematic review of controlled clinical trials of gastric lavage in acute organophosphorus pesticide poisoning

Li Y, Tse M L, Gawarammana I, Buckley N, Eddleston M

CRD summary
This review assessed the effect of gastric lavage in acute organophosphorus pesticide poisoning. The authors concluded that there was no high quality evidence available to support the clinical effectiveness of single or multiple gastric lavages for organophosphorus pesticide poisoning. Given the methodological and reporting limitations of the primary study data, this conclusion appears appropriate.

Authors' objectives
To assess the effect of gastric lavage in acute organophosphorus pesticide poisoning.

Searching
PubMed, EMBASE, the Cochrane Library (search dates not reported), Chinese National Knowledge Infrastructure (1979 to 2006) databases were searched for studies in any language. Search terms were reported. The Internet was also searched using Google.

Study selection
Controlled clinical studies that assessed the effect of gastric lavage in organophosphorus pesticide self-poisoning were included.

The interventions in the included studies varied, with single or multiple gastric lavages performed at different time-points, administered through different means and with various concomitant treatments. Most of the control groups included single or multiple gastric lavages with water or saline; some studies reported the means of administration (which differed between studies). No studies compared an intervention with a control group receiving no gastric lavage, and no studies indicated whether a significant quantity of poison was removed. Randomised trials and non-randomised studies were included.

Papers were selected by two reviewers and disagreements resolved by discussion.

Assessment of study quality
The authors stated that none of the studies presented adequate methodology for quality to be assessed (using the Consolidated Standards of Reporting Trials (CONSORT) criteria).

Data extraction
The authors stated that data were extracted into a standard format by two reviewers.

Methods of synthesis
The studies were combined narratively, grouped by common comparisons. A table of individual study details was also presented.

Results of the review
Fifty six controlled studies were included, assessing the effects of 16 variations in procedure; 23 were randomised controlled trials (RCTs).

All studies reported benefit from the intervention investigated. These included multiple gastric lavages, use of norepinephrine or pralidoxime in the lavage fluid, concurrent treatment with naloxone or scopolamine, insertion of the gastric tube via a laparotomy incision, and lavage later than 12 hours post-ingestion. The authors reported that the large variation in case fatality in the control arm (4.5% to 93%) suggested marked variation between studies and study arms.
Authors' conclusions
There was no high quality evidence available to support the clinical effectiveness of single or multiple gastric lavages for organophosphorus pesticide poisoning.

CRD commentary
The inclusion criteria were not specifically stated but appeared to address study design, intervention and participants. Several relevant databases were searched for studies in any language, reducing the risk of language bias. However, the authors did not report searching for unpublished data, so publication bias was possible. Study selection and data extraction were performed in duplicate, reducing the possibility of reviewer error and bias.

The studies were combined narratively, which appeared appropriate due to the heterogeneity between studies. The authors stated that the detail provided in the primary studies was limited and that they were generally of poor quality.

Given the limitations of the primary study data, the authors' conclusion appears appropriate.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that future studies on gastric lavage should record data that support the proposed mechanism being feasible, as well as recording clinical outcomes. There is also a need for better methodology and high quality research in this area.

Funding
Not stated.

Bibliographic details

PubMedID
18988062

DOI
10.1080/15563650701846262

Original Paper URL
http://www.informahealthcare.com/doi/abs/10.1080/15563650701846262

Indexing Status
Subject indexing assigned by NLM

MeSH
Adrenergic alpha-Agonists /therapeutic use; Cholinesterase Reactivators /therapeutic use; Diuretics /therapeutic use; Gastric Lavage /instrumentation; Hospitalization; Humans; Hydrogen-Ion Concentration; Intubation, Gastrointestinal; Laparotomy; Mannitol /therapeutic use; Naloxone /therapeutic use; Narcotic Antagonists /therapeutic use; Norepinephrine /therapeutic use; Organophosphate Poisoning; Parasympathomlytics /therapeutic use; Pesticides /poisoning; Plasma Exchange; Poisoning /drug therapy /surgery /therapy; Pralidoxime Compounds /therapeutic use; Scopolamine Hydrobromide /therapeutic use; Time Factors

AccessionNumber
12009105233

Date bibliographic record published
Date abstract record published
24/03/2010

Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.