TITLE: Intravenous Magnesium Sulphate for Pre-Hospital Management of Refractory Asthma: Clinical Effectiveness and Guidelines

DATE: 31 August 2015

RESEARCH QUESTIONS

1. What is the clinical effectiveness of intravenous administration of magnesium sulphate for the treatment of acute and unrelieved, refractory asthma-related bronchospasm in pre-hospital settings?

2. What are the evidence-based guidelines regarding the intravenous administration of magnesium sulphate for the treatment of acute and unrelieved, refractory asthma-related bronchospasm in pre-hospital settings?

KEY FINDINGS

No relevant literature was identified regarding the guidelines for, and clinical effectiveness of, intravenous administration of magnesium sulphate for the treatment of acute and unrelieved, refractory asthma-related bronchospasm in pre-hospital settings.

METHODS

A limited literature search was conducted 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. 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, 2005 and August 17, 2015. 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.
SELECTION CRITERIA

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

<table>
<thead>
<tr>
<th>Table 1: Selection Criteria</th>
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<tbody>
<tr>
<td><strong>Population</strong></td>
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<tr>
<td>Patients (any age) with acute and unrelieved, refractory (severe) asthma-related bronchospasm in pre-hospital settings</td>
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<td><strong>Intervention</strong></td>
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<td>Intravenous magnesium sulphate</td>
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<td><strong>Comparator</strong></td>
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<td>Q1: Inhaled Beta-2 agonists or anticholinergics; continuous positive airway pressure, intramuscular epinephrine, oral and intravenous corticosteroids</td>
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<td>Q2: No comparator necessary</td>
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<td><strong>Outcomes</strong></td>
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<tr>
<td>Q1: Clinical effectiveness (e.g., onset and duration of effectiveness); Safety (e.g., cardiac arrhythmia)</td>
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<td>Q2: Guidelines for use</td>
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<td><strong>Study Designs</strong></td>
</tr>
<tr>
<td>Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, evidence-based guidelines</td>
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</table>

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 health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies or evidence-based guidelines were identified regarding the guidelines for, and clinical effectiveness of, intravenous administration of magnesium sulphate for the treatment of acute and unrelieved, refractory asthma-related bronchospasm in pre-hospital settings.

References of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

No relevant literature was identified regarding the guidelines for, and clinical effectiveness of, intravenous administration of magnesium sulphate for the treatment of acute and unrelieved, refractory asthma-related bronchospasm in pre-hospital settings; therefore, no summary can be provided.
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.

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APPENDIX – FURTHER INFORMATION:

Systematic Reviews

**Unclear Setting**


**Emergency Department Setting**


Randomized Controlled Trials

Emergency Department Setting


Unclear Setting


Non-Randomized Studies – Emergency Department Setting

Guidelines and Recommendations – Unclear Setting

See: 8.2.5 Magnesium Sulphate, page 89

Clinical Practice Guidelines – Unclear Setting

See: Assessment and Management: Severe and Critical

PubMed: PM23656743

https://www.icsi.org/_asset/rsjvnd/Asthma.pdf
See: Recommendations, page 31

Position Statements


Review Articles

PubMed: PM24345031

PubMed: PM21766754