TITLE: Intravenous Magnesium Sulphate for Refractory Torsades de Pointes or Ventricular fibrillation: Clinical Effectiveness and Guidelines

DATE: 06 November 2015

RESEARCH QUESTIONS

1. What is the clinical effectiveness of intravenous magnesium sulphate for patients with refractory torsades de pointes or ventricular fibrillation?

2. What are the evidence-based guidelines regarding the administration of intravenous magnesium sulphate for patients with refractory torsades de pointes or ventricular fibrillation?

KEY FINDINGS

Two evidence-based guidelines were identified regarding the administration of intravenous magnesium sulphate for patients with refractory torsades de pointes and ventricular fibrillation.

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, ECRI Institute, 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. The search was limited to English language documents published between Jan 1, 2010 and Oct 28, 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 1: Selection Criteria

<table>
<thead>
<tr>
<th>Population</th>
<th>Patients with refractory torsades de pointes (with or without pulse) or ventricular fibrillation</th>
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</thead>
<tbody>
<tr>
<td>Intervention</td>
<td>Intravenous infusion (or bolus push for cardiac arrest) of magnesium sulphate</td>
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<tr>
<td>Comparator</td>
<td>Q1: Intravenous amiodarone or lidocaine</td>
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<td></td>
<td>Q2: No comparator</td>
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<tr>
<td>Outcomes</td>
<td>Q1: Clinical effectiveness and safety</td>
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<td></td>
<td>Q2: Evidence-based guidelines</td>
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<tr>
<td>Study Designs</td>
<td>Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, evidence-based guidelines</td>
</tr>
</tbody>
</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.

Two evidence-based guidelines were identified regarding the administration of intravenous magnesium sulphate for patients with refractory torsades de pointes and ventricular fibrillation. No health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, or non-randomized studies were identified regarding the clinical effectiveness of intravenous magnesium sulphate for patients with refractory torsades de pointes or ventricular fibrillation.

Additional references of potential interest are provided in the appendix.

### OVERALL SUMMARY OF FINDINGS

Two evidence-based guidelines\(^1\,^2\) were identified regarding the administration of intravenous magnesium sulphate for patients with refractory torsades de pointes and ventricular fibrillation. The 2015 guideline from the European Society of Cardiology\(^1\) recommends the use of intravenous magnesium for the treatment of torsades de pointes episodes. The guideline by the Scottish Intercollegiate Guidelines Network\(^2\) recommends the use of intravenous magnesium for patients with polymorphic ventricular tachycardia.
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

See: 4.2.4 Electrolytes, page 17
   12.5.2 Drug–drug interaction (due to specific drugs and combinations), page 61
   12.5.3 Pro-arrhythmia risk of anti-arrhythmic drugs, page 51
   12.5.4 Pro-arrhythmia due to triggering factors, page 61

See: Adjunctive Therapies in the Peri-Arrest Period

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APPENDIX – FURTHER INFORMATION:

Randomized Controlled Trials - Alternate Comparator


Non-Randomized Studies

Alternate Comparator


Physician Survey, Alternate Outcomes


Clinical Practice Guidelines – Uncertain Methodology

See: G. Torsades de Pointes, page 39

PubMed: PM20956224
See: Drug Therapy in VF/Pulseless VT
Magnesium Sulfate

Review Articles

Intravenous Magnesium Sulphate for Refractory Torsades de Pointes or Ventricular Fibrillation

PubMed: PM26183037


