TITLE: Dual Antiplatelet Therapy and Enoxaparin or Unfractionated Heparin for patients with ST-elevation Myocardial Infarction: A Review of the Clinical Evidence

DATE: 29 August 2012

CONTEXT AND POLICY ISSUES

Acute myocardial infarction (AMI) is one of the most frequent causes of mortality world-wide.\(^1\) AMI is caused by prolonged ischemia resulting from sudden occlusion of a coronary artery due to thrombus formation.\(^1\) ST-segment elevation myocardial infarction (STEMI) is a type of AMI. In STEMI patients ST-segment elevation is observed in the electrocardiogram. Prompt diagnosis of STEMI is important as the benefits of therapy are greater when initiated early. The initial reperfusion generally involves two options: pharmacologic reperfusion by fibrinolysis or mechanical reperfusion by primary percutaneous coronary intervention (PCI).\(^2\) PCI is the preferred choice, if it can be performed in a timely fashion by experienced health care providers.\(^3\) Not all hospitals, however, have PCI facilities and such facilities are generally fewer in rural areas compared to urban areas.\(^3\) The reperfusion therapy used depends on the availability of resources and local practice patterns.\(^2\) STEMI patients are treated with a variety of pharmacologic agents which include thrombolytic agents such as streptokinase and tenecteplase; anticoagulants such as unfractionated heparin and enoxaparin; and anti-platelets such as aspirin and clopidogrel.\(^4\)

The aim of this report is to review the clinical effectiveness of dual antiplatelet therapy combined with enoxaparin or unfractionated heparin compared with thrombolytic therapy in patients with STEMI.

RESEARCH QUESTION

What is the comparative clinical effectiveness of dual antiplatelet therapy combined with enoxaparin or unfractionated heparin versus thrombolytic therapy in patients with ST-elevation myocardial infarction?
KEY MESSAGE

No relevant studies were identified that compared the clinical effectiveness of dual antiplatelet therapy combined with enoxaparin or unfractionated heparin versus thrombolytic therapy in patients with ST-elevation myocardial infarction.

METHODS:

Literature Search Strategy

A limited literature search was conducted on key resources including MEDLINE, PubMed, The Cochrane Library (2012, Issue 8), 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 01, 1998 and August 15, 2012.

Selection Criteria and Methods

Table 1: Selection Criteria

<table>
<thead>
<tr>
<th>Population</th>
<th>Adult patients with ST segment elevation myocardial infarction</th>
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<tr>
<td>Intervention</td>
<td>Dual antiplatelet therapy (clopidogrel and ASA) combined with enoxaparin or unfractionated heparin</td>
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<tr>
<td>Comparator</td>
<td>Thrombolytic therapy (streptokinase, urokinase, alteplase, reteplase, tenecteplase)</td>
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<td>Outcomes</td>
<td>Reduction in thromboembolic events, morbidity/mortality, congestive heart failure, bleeding risk, cardiac adverse events, other adverse events</td>
</tr>
<tr>
<td>Study Designs</td>
<td>Health technology assessments, systematic reviews and meta-analyses, randomized controlled trials (RCT), and non-randomized studies</td>
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Exclusion Criteria

Studies were excluded if they did not satisfy the selection criteria in Table 1; if they were published prior to 1998, duplicate publications of the same study, or included in a selected health technology assessment or systematic review and did not provide additional relevant information.

Critical Appraisal of Individual Studies

No critical appraisal was conducted as no relevant studies were identified.
SUMMARY OF EVIDENCE:

Quantity of Research Available

The literature search yielded 248 citations. Upon screening titles and abstracts, 242 articles were excluded and six potentially relevant articles were selected for full-text review. However, upon further investigation none of the six articles satisfied the inclusion criteria and were excluded. No relevant studies were identified from the grey literature. No relevant health technology assessments, systematic reviews, randomized controlled trials or non-randomized studies were identified. Details of the study selection process are outlined in Appendix 1.

References, which did not satisfy the selection criteria and included information regarding the intervention in STEMI patients, may be of interest and are provided in the Appendix 2.

Summary of Study Characteristics

No relevant studies were identified.

Summary of Critical Appraisal

No relevant studies were identified.

Summary of Findings

No relevant studies were identified.

Limitations

No relevant studies were identified.

CONCLUSIONS AND IMPLICATIONS FOR DECISION OR POLICY MAKING:

No relevant studies were identified.

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REFERENCES


APPENDIX 1: Selection of Included Studies

248 citations identified from electronic literature search and screened

242 citations excluded

6 potentially relevant articles retrieved for scrutiny (full text, if available)

No potentially relevant reports retrieved from other sources (grey literature)

6 potentially relevant reports

6 reports excluded:
- irrelevant comparator (2)
- irrelevant condition (2)
- other (review articles, editorials) (2)

No relevant reports
APPENDIX 2: References of Potential Interest (Comparison not Relevant)


