TITLE: Automated External Defibrillators in Hospitals: Clinical Effectiveness and Guidelines

DATE: 13 May 2015

RESEARCH QUESTIONS

1. What is the comparative clinical effectiveness of automated external defibrillators in addition to cardiopulmonary resuscitation (CPR) versus CPR alone for patients undergoing cardiac arrest in a hospital setting?

2. What are the evidence-based guidelines regarding the use of automated external defibrillators for patients undergoing cardiac arrest in a hospital setting?

KEY FINDINGS

Three non-randomized studies were identified regarding the comparative clinical effectiveness of automated external defibrillators in addition to CPR versus CPR alone for patients undergoing cardiac arrest in a hospital setting. No relevant evidence-based guidelines were identified.

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, 2010 and May 5, 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.

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<th>Table 1: Selection Criteria</th>
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<td><strong>Population</strong></td>
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<td><strong>Intervention</strong></td>
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| **Comparator**                       | Q1: CPR  
                                           Q2: No comparator necessary |
| **Outcomes**                         | Q1: Clinical benefit (mortality, morbidity)  
                                           Q2: Guidelines and recommendations |
| **Study Designs**                    | Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, evidence-based guidelines |

CPR = cardiopulmonary resuscitation.

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.

Three non-randomized studies were identified regarding the comparative clinical effectiveness of automated external defibrillators (AEDs) in addition to CPR versus CPR alone for patients undergoing cardiac arrest in a hospital setting. No relevant health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, or evidence-based guidelines were identified.

Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

Three non-randomized studies\(^1\)\(^{-}\)\(^3\) were identified comparing the clinical effectiveness of AEDs plus CPR with CPR alone for patients undergoing cardiac arrest in hospitals. Two studies found that use of an AED for in-hospital cardiac arrest was associated with a significantly lower survival rate.\(^1\)\(^,\)\(^3\) In one study,\(^2\) spontaneous circulation returned significantly more often when an AED was used but the proportion of survivors was similar whether an AED was used or not. All three studies concluded that AED use was not associated with improved hospital survival.\(^1\)\(^{-}\)\(^3\)
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


Guidelines and Recommendations
No literature identified.

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APPENDIX – FURTHER INFORMATION:

Non-Randomized Studies

No Comparator


Unclear Comparator


Consensus Statements


See: Automated External Defibrillators, page 1546
Recommendation 2, page 1555

Review Articles
