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Automatic external defibrillation by first responders for out of hospital cardiac arrest

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Background

Cardiovascular disease is a major cause of death in first world countries.**[1,2]** Most sudden cardiac arrests occur outside of the hospital and survival rates have traditionally been poor.**[3,4,5]** If victims of out of hospital cardiac arrest receive immediate and appropriate treatment, they have a 30%-70% chance of survival. **[6]** International literature shows that early defibrillation and cardiopulmonary resuscitation play a vital role in the patient's chance of survival. **[7,8,9]** Defibrillation is the definitive treatment, but is rarely successful if the patient has been in ventricular fibrillation (VF) for longer than 10 mins.**[10]** The automatic external defibrillator (AED) automates many of the stages in performing defibrillation without requiring decisions by the first responder. The simplicity of the AED allows a wider range of first responders to perform defibrillation, and may consequently improve survival from out of hospital cardiac arrest. For the purpose of this review, "first responder" was defined as paramedics (of any qualification level), fire fighters, police and first aiders.

Data Source

The Cochrane Library 2004, Issue 3

Search Terms

Prehospital Search Filter Version 1.0 **[11]**
police*, fire*, st john*, defib*, public access defib*, heart arrest (MeSH), cardiac arrest, auto* external defib*, AED

***Protocols*:** None
Systematic Reviews: None
Controlled Clinical Trials: 8

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Commentary

Eight controlled clinical trials were identified in the Cochrane Library that compared AED use to no AED use or to standard BLS interventions. Most of the studies had small sample sizes which makes it difficult to detect a significant difference in survival rates. A meta-analyses or larger prospective trial would need to be conducted to determine the impact of AED use by first responders on survival from out of hospital cardiac arrest.

The Bottom Line

The use of AEDs by first responders increased the probability of survival from out of hospital cardiac arrest in 7 of the 8 studies identified.

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