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Title Piston-type Mechanical Chest Compression

Agency HTA Malaysia, Health Technology Assessment Section, Medical Development Division, Ministry of Health Malaysia
Level 4, Block E1, Parcel E, Presint 1,
Federal Government Administrative Center, 62590 Putrajaya, Malaysia
Tel: +603 88831229, Fax: +603 88831230; htamalaysia@moh.gov.my, www.moh.gov.my

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Aim

The objective of the technology review was to review the efficacy and device performance of piston-type Mechanical Chest Compression (MCC) compared to manual cardio pulmonary resuscitation (CPR) or manual chest compression in patient with Out-of-Hospital Cardiac Arrest (OHCA)/ sudden cardiac arrest (SCA) or atraumatic cardiac arrest in Emergency Department with primary care team.

Conclusions and results

Based from the review, overall survival comparing manual with piston-type MCC showed that the clinical benefits of piston-type MCC is as good as compared to good manual chest compression during CPR for OHCA/SCA or atraumatic cardiac arrest. RR= 0.41, 95% CI 0.21 to 0.79

In addition, there are several large randomised trials designed to answer the used and benefit of piston-type MCC in resuscitation field are currently under way, and these results are expected in the next two years.

Recommendations (if any)

Piston-type MCC is beneficial in aiding the resuscitation and particularly useful for pre-hospital care and cardiac catheterisation laboratory.

Methods

A systematic search was performed using electronic databases such as PubMed, Medline, Journal @ Ovid full text via OVID, OVID EBM Reviews - Cochrane central register of controlled trials, EBM Reviews - Cochrane database of systematic review, FDA website, MHRA website and from non-scientific database - Google search engine. In addition, a cross-referencing of the articles retrieved was also carried out accordingly to the topic. Relevant articles were critically appraised and evidence graded using US/Canadian Preventive Services Task Force. Data were extracted and summarized in evidence table.

Further research/reviews required

Chest compression is fundamental to CPR. The effectiveness of manual chest compressions depends on the endurance and skills of rescuers and manual compressions provide only approximately 30% of normal cardiac output. Mechanical chest compression (MCM) devices have therefore been developed to improve CPR, however, evidence about its benefits, particularly relating to clinical outcomes is yet to be determined.

Written by

Ana Fizalinda Abdullah Sani, MaHTAS, Malaysia