85% of Cardiac Arrests Occur at Home

Victims are usually in their sixties, and the most likely bystander is a similarly aged spouse.

Two methods of CPR are commonly used: the Continuous Chest Compression and 30:2 Compressions-to-Ventilation Methods.

How do these CPR methods compare in terms of bystander fatigue and CPR quality for an older bystander population?

A Randomized Crossover Trial

Location: 4 study hospitals, 15 hospitals, 1 service center in Ottawa, Canada

Inclusion Criteria: 75 years or older, 24 hrs survival limitations, 3 or in Critical Reality Scale

Participants: 43 enrolled between July-August 2010, 63 accrued in study

Study subjects practiced CPR technique and pacing on mannequins. Randomization was assigned to two groups:

Group 1: 5 minutes of CPR via 30:2 method (n=33)

Group 2: 5 minutes of CPR via CCC method (n=50)

5 minutes of CPR via 30:2 method

5 minutes of CPR via CCC method

Rest

Record measures of fatigue (HR, BP, Borg Scale), CPR quality (frequency, number and depth of compressions) and preferred method of CPR

The Results

Pros of CCC-CPR

Cons of CCC-CPR

Participants using CCC-CPR performed fewer compressions (n=216 vs 374)

CCC-CPR was also associated with more chest compression interruptions (862 vs 354)

The number of inadequate chest compressions was significantly lower with CCC compared to CPR-CPR

95% of participants preferred the 30:2 method, despite similar levels of fatigue

Points of Interest

A fasciculosis was set at 100 bpm to set the chest compression rate during CPR practice and the study intervention.

Fatigue was measured at baseline and before and after each CPR session. CPR quality was measured using a mannequin.

A General Linear Model (GLM) was used to account for any carry-over effect of fatigue from one CPR session to the next.

Conclusions

CPR quality decreased significantly faster when performing CCC compared to 30:2. However, performing CCC produced more adequate compressions overall, with a similar level of fatigue compared to the 30:2 method.

Limitations of the study included the use of a mannequin to artificially control compression rate, as well as the selection of a “fitter” cohort which may not be representative of a similarly-aged population.

References:


2. CPR icon made by Freepik from www.flaticon.com