

Chest compression depth and survival in out-of-hospital cardiac arrest

1 ABSTRACT

Aim

Outcomes from out-of-hospital cardiac arrest (OHCA) may improve if rescuers perform chest compressions (CCs) deeper than the previous recommendation of 38–51 mm and consistent with the 2010 AHA Guideline recommendation of at least 51 mm. The aim of this study was to assess the relationship between CC depth and OHCA survival.

Methods

Prospective analysis of CC depth and outcomes in consecutive adult OHCA of presumed cardiac aetiology from two EMS agencies participating in comprehensive CPR quality improvement initiatives. Analysis: Multivariable logistic regression to calculate adjusted odds ratios (aORs) for survival to hospital discharge and favourable functional outcome.

Results

Among 593 OHCA, 136 patients (22.9%) achieved return of spontaneous circulation, 63 patients (10.6%) survived and 50 had favourable functional outcome (8.4%). Mean CC depth was 49.8 ± 11.0 mm and mean CC rate was 113.9 ± 18.1 CC min⁻¹. Mean depth was significantly deeper in survivors (53.6 mm, 95% CI: 50.5–56.7) than non-survivors (48.8 mm, 95% CI: 47.6–50.0). Each 5 mm increase in mean CC depth significantly increased the odds of survival and survival with favourable functional outcome: aORs were 1.29 (95% CI 1.00–1.65) and 1.30 (95% CI 1.00–1.70) respectively.

Conclusion

Deeper chest compressions were associated with improved survival and functional outcome following OHCA. Our results suggest that adhering to the 2010 AHA Guideline-recommended depth of at least 51 mm could improve outcomes for victims of OHCA.