CARDIAC RESUSCITATION

Optimal chest compression for CPR

In 2010, the AHA revised the guidelines on cardiopulmonary resuscitation (CPR) and increased the recommended depth of chest compression from ≥ 38 mm to ≥ 50 mm, with no upper limit defined. Now, the researchers in a new study present data that challenge these recommendations.

The investigators collected data on out-of-hospital CPR performed by emergency medical services on 27,986 individuals between June 2007 and December 2010 at nine locations in the USA and Canada. CPR compression depth was measured using commercially available defibrillators fitted with pads containing an accelerometer that recorded compression of the anterior chest wall.

After using a strict exclusion criteria, which included incomplete or absent data, 9,136 patients (mean age 67.5 years) were included in the final analysis. Overall, the mean chest compression depth was 41.9 mm and the primary outcome—survival to hospital discharge—was achieved in 666 patients (7.3%).

Using a covariate-adjusted spline curve, the investigators calculated that the compression depth for maximum survival lies between 40.3 mm and 55.3 mm, with an optimal depth of 45.6 mm, well below the current AHA guideline. Moreover, for every 5 mm increase in chest compression depth, the odds ratio of the primary end point was 1.04 (95% CI 1.00–1.08) when adjusted for covariant factors such as age, sex, and location.

The team conclude that “increased CPR compression depth is strongly associated with better survival to hospital discharge,” and highlight that “professional CPR providers must be mindful of achieving adequate compression depth but without going too deep”.

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Original article Stiell, I. G. *et al.* What is the optimal chest compression depth during out-of-hospital cardiac arrest resuscitation of adult patients? *Circulation* doi:10.1161/CIRCULATIONAHA.114.008671