Video-only Cardiopulmonary Resuscitation Education for Families Before Hospital Discharge: A Multicenter Pragmatic Clinical Trial


Background: The need for improved dissemination of public cardiopulmonary resuscitation (CPR) education is highlighted by the fact that bystander CPR is delivered in less than 40% of cardiac arrests in the US. Studies have suggested that simplified methods for CPR training can promote broader dissemination. The minimum CPR training curriculum to encourage broad implementation but ensure long-term retention remains poorly characterized.

Objectives: To compare video-only CPR training without a manikin to training with a video self-instruction (VSI) kit including a practice manikin. We hypothesized that laypersons who receive video-only training will perform comparable chest compressions (CC) as those taught with a VSI kit six months after initial training.

Methods: We performed a pragmatic, randomized trial of CPR training for family members of cardiac patients on inpatient wards at eight hospitals. Hospitals were block randomized to offer either video-only training or the VSI kit to high-risk families before patient discharge. At six months post-training, CPR skills were assessed quantitatively. We analyzed the mean difference in chest compression rate and depth between cohorts and used multivariate regression modeling to control for confounding.

Results: From 2/2012 to 5/2015, 1610 subjects were enrolled and 571 subjects consented to a 6-month skills check. Enrollees’ mean age was 52±15 years, 73% were female and 81% were immediate patient’s family. The unadjusted mean CC rate in the video-only cohort was 88 (95% CI: 85, 90) compressions per min (cpm) and 89 (95% CI: 87, 91) cpm in the VSI cohort (p=0.56), while the mean CC depth was 40 (95% CI: 39, 42) mm in the video-only cohort and 45 (95% CI: 44, 47) mm in the VSI cohort (p<0.01). The statistical relationship remained the same after adjustment for confounding.

Conclusions: To our knowledge, this represents the largest prospective trial of CPR training and long-term retention among lay providers. Video-only training yielded a statistically indistinguishable difference in CC rate compared to VSI training. While the CC depth was statistically different, the clinical impact of these differences may be small given recent clinical research suggesting maximum survival benefit at depths between 40-55 mm.

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