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Quality of CPR performed by trained bystanders with optimized pre-arrival instructions.

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Abstract

OBJECTIVE: Telephone-CPR (T-CPR) can increase initiation of bystander CPR. We wanted to study if quality oriented continuous T-CPR would improve CPR performance vs. standard T-CPR.

METHOD: Ninety-five trained rescuers aged 22-69 were randomized to standard T-CPR or experimental continuous T-CPR (comprises continuous instructions, questions and encouragement). They were instructed to perform 10 min of chest compressions-only on a manikin, which recorded CPR performance in a small, confined kitchen. Three video-cameras captured algorithm time data, CPR technique and communication. Demography and training experience were captured during debriefing.

RESULTS: Participants receiving continuous T-CPR delivered significantly more chest compressions (median 1000 vs. 870 compressions, $p=0.014$) and compressed more frequently to a compression rate between 90 and 120 min(-1) (median 87% vs. 60% of compressions, $p<0.001$), compared to those receiving standard T-CPR. This also resulted in less time without compressions after CPR had started (median 12s vs. 64 s, $p<0.001$), but longer time interval from initiating contact with dispatcher to first chest compression (median 144 s vs. 84 s, $p<0.001$). There was no difference in chest compression depth (mean 47 mm vs. 48 mm, $p = 0.90$) or in demography, education and previous CPR training between the groups.

CONCLUSION: In our simulated scenario with CPR trained lay rescuers, experimental continuous T-CPR gave better chest compression rate and less hands-off time during CPR, but resulted in delayed time to first chest compression compared to standard T-CPR instructions.

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KEYWORDS: Bystander CPR; CPR; Cardiopulmonary resuscitation; Chest compression; Dispatcher instructions; Pre-arrival instructions

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