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PT22

A simulation study to improve time to first chest compression and depth of compression following an enhanced T-CPR protocol in Saudi Arabia

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Purpose: Out of hospital cardiac arrest (OHCA) is a major health problem worldwide with a survival rate of 8.8%. Providing bystanders with telephone CPR guidance (T-CPR) has been shown to improve time to first compression and CPR performance quality with associated improvement in survival rate. However, in a simulation study, time to first compression and depth of compression (DoC) following the Saudi T-CPR protocol were found to fall short of the international resuscitation standard. Factors affecting them related to language used, clarity of the instructions and volume of instructions given. To improve them, an enhanced T-CPR protocol has been developed. This study aims to examine time to first compression and DoC following the enhanced protocol, to determine if performance improved compared with the Saudi T-CPR protocol.

Methods: An observational, prospective, OHCA simulation study was conducted to examine CPR performance in 50 adult volunteers with no basic life support experience. Participants were selected using stratified random sampling of a University population in Saudi Arabia. A SimMan 3G manikin, video and audio recordings were used to determine participants performance. Semi-structured interviews with participants were conducted to receive feedback regarding the modified factors in the enhanced protocol compared with the Saudi T-CPR protocol.

Results: Median time to first compression and DoC significantly improved compared with a previous study using the Saudi T-CPR protocol, from 110 s to 79 s (p < .001) and from 30 mm to 35 mm (p = .003) respectively. The participants reported that the enhanced protocol used simpler language, clearer instructions, and fewer words which decreased the complexity of the process.

Conclusion: Clear and simple telephone instructions are vital to CPR timeliness and quality. Whilst in this study time to first compression and DoC both improved, performance still below the resuscitation standard and further study to improve T-CPR protocol is needed.

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PT23

The impacts on bystander and dispatcher-assisted cardiopulmonary resuscitation during COVID-19 pandemic

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Purpose: The impact of emerging infections disease pandemic such as COVID-19 on bystander CPR performance is not well known.

Materials and methods: This was an observational database prospectively collected from National Registry for DACPR (dispatcher-assisted CPR), a continuous quality control for OHCA by audio records analyses of EMS calls. The performance of DACPR before and after the COVID-19 epidemic was compared among four individual EMS systems (three metropolitan and one suburban). The bystander chest compressions (BCC) rate prior to the call, successful delivery of BCC after dispatcher-assisted, and the continuity of CC until hand-over by the paramedics after arrival (HCC) as the categorical indicators, and the operational time interval corresponding to call-to-compression were evaluated and analyzed using Pearson’s chi-squared test, Independent t-test, and Kruskal–Wallis test with SPSS Version 22.

Results: In a total of 3263 eligible patients from four EMS systems, for patients already receiving BCC prior to the call, though showing a tendency of decrease, there were no significant differences after the epidemics (A: 3.6% vs. 5.7%, p = 0.13; B: 4.5% vs. 6.1%, p = 0.46; C: 6.0% vs. 6.6%, p = 0.71; D: 6.8% vs. 10.7%, p = 0.59; Total: 4.9% vs. 6.4%, p = 0.11). For dispatcher-assisted BCC delivery, a metropolitan (B) significantly decreased and the suburban (D) significantly increased (A: 55.0% vs. 56.1%, p = 0.72; B: 41.8% vs. 52.3%, p = 0.03; C: 60.6% vs. 56.5%, p < 0.01; D: 83.0% vs. 60.2%, p < 0.01; Total: 56.8% vs. 55.6%, p = 0.53). For continuity of HCC, a metropolitan (C) and the suburban (D) both significantly increased as well as the total cases (A: 43.9% vs. 46.4%, p = 0.43; B: 28.5% vs. 31.0%, p = 0.56; C: 54.0% vs. 40.0%, p < 0.01; D: 77.4% vs. 59.3%, p = 0.02; Total: 47.4% vs. 41.3%, p < 0.01). For call-to-compression interval, all regions showed a tendency to be faster without significance (A: 185 vs. 189 s, p = 0.8; B: 141 vs. 156 s, p = 0.19; C: 173 vs. 182 s, p = 0.12; D: 156 vs. 171 s, p = 0.27; Total: 164 vs. 172 s, p = 0.19).

Conclusions: The impacts of COVID-19 pandemic showed a tendency to decrease BCC prior to dispatcher-assisted, and were significantly varied for dispatcher-assisted BCC among different EMS systems, however the timely BCC would not be delayed. Continuity of BCC even significantly increased under the national continuous auditing.

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