
Two Shocks Better Than One?



In a recent investigation, the researchers aimed to answer whether alternative defibrillation strategies, including vector-change (VC) defibrillation and double sequential external defibrillation (DSED), improve survival to hospital discharge in patients experiencing out-of-hospital cardiac arrest with refractory ventricular fibrillation.

The authors chose a cluster randomised controlled trial as the study design to investigate the effect of two alternative defibrillation strategies (VC defibrillation and DSED) on survival to hospital discharge in adult patients with out-of-hospital cardiac arrest (OHCA) due to refractory ventricular fibrillation. The study was conducted in six Canadian paramedic services. The primary outcome was survival to hospital discharge, while secondary outcomes included termination of ventricular fibrillation, return of spontaneous circulation, and survival with a good neurologic outcome.

The study included 405 patients with OHCA due to refractory ventricular fibrillation. Findings show that both DSED and VC defibrillation were found to be associated with a higher chance of survival to hospital discharge compared with standard defibrillation. DSED was also associated with a higher chance of survival with a good neurologic outcome than standard defibrillation.

This study sheds light on the use of alternative defibrillation strategies for refractory ventricular fibrillation. The study results show promising outcomes for DSED and VC defibrillation, with higher survival rates to hospital discharge than standard defibrillation. However, larger trials are needed to confirm these findings and increase statistical power, which could improve the reliability of the effect size and reduce imbalances between study cohorts.

It is important to note resuscitation time bias and how it can affect the results of clinical trials investigating interventions for OHCA. Resuscitation time bias occurs when an intervention is used late in the clinical course, meaning that the patients enrolled in the study are non-responders who differ in underlying physiology and prognosis from the general population of OHCA patients. This study used a cluster randomised trial design to limit the effects of resuscitation time bias. The paramedic service was randomised to defibrillation strategy, ensuring all patients received the assigned defibrillation strategy at similar points in the resuscitation.

The trial was stopped early due to operational challenges related to the COVID-19 pandemic, which limited the sample size and may have affected the certainty of the results. However, the results do suggest promise and should be confirmed with larger trials.

Source: [Annals of Emergency Medicine](#)

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Published on : Wed, 15 Mar 2023