

Abstract:

BACKGROUND: Adrenaline is an important component in the resuscitation of individuals experiencing out-of-hospital cardiac arrest (OHCA). The 2018 Advanced Cardiac Life Support (ACLS) algorithm gives the option of either intravenous (IV) or intraosseous (IO) routes for adrenaline administration during cardiac arrest. However, the optimal route during prehospital resuscitation remains controversial. This study aims to investigate whether IV and IO routes lead to different outcomes in OHCA patients who received prehospital adrenaline.

METHODS: This retrospective analysis included adult patients with OHCA of presumed cardiac origin who had Emergency Medical Services (EMS) CPR, received adrenaline, and were enrolled in the Resuscitation Outcomes Consortium (ROC) Cardiac Epistry version 3 database between 2011 and 2015. We divided the study population into IV and IO groups based on the administration route. Logistic regression analysis was performed to evaluate the association between adrenaline delivery routes and prehospital return of spontaneous circulation (ROSC), survival to hospital discharge, and favorable neurological outcome.

RESULTS: Of the 35,733 patients included, 27,758 (77.7%) had adrenaline administered via IV access and 7975 (22.3%) via IO access. With the IO group as a reference in the logistic regression model, the adjusted odds ratios of the IV group for prehospital ROSC, survival and favorable neurological outcome were 1.367 (95%CI, 1.276-1.464), 1.468 (95%CI, 1.264-1.705) and 1.849 (95%CI, 1.526-2.240), respectively. Similar results were found in the propensity score matched population and subgroup analysis.

CONCLUSION: Compared with the IO approach, the IV approach appears to be the optimal route for adrenaline administration in advanced life support for OHCA during prehospital resuscitation.

Reference:

Zhang, Y., Zhu, J., Liu, Z., Gu, L., Zhang, W., Zhan, H., Hu, C., Liao, J., Xiong, Y. and Idris, A.H. (2020) Intravenous versus intraosseous adrenaline administration in out-of-hospital cardiac arrest: A retrospective cohort study. *Resuscitation*. January 23rd. doi: 10.1016/j.resuscitation.2020.01.009. (Epub ahead of print).