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Abstract:

INTRODUCTION: The 2015 advanced cardiac life support update continues to advocate administering epinephrine during cardiac arrest. The goal of our study is to determine if prehospital intraosseous (IO) access results in shorter time to epinephrine than prehospital peripheral intravenous (PIV) access.

METHODS: The out-of-hospital cardiac arrest (OHCA) database of a large, urban, fire-based emergency medical services system was searched for consecutive cases of OHCA between January 2013 and December 2015. The time to the first dose of epinephrine was calculated and compared by vascular access technique utilized (PIV or IO). Descriptive statistics were used to report first pass success and IO complications.

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RESULTS: A total of 3,470 OHCA cases were treated during the study period. Of those cases, 2,656 met our inclusion criteria. There were 2,601 cases of IO usage and 55 cases of PIV usage. The mean time from arrival at the patient's side to administration of the first dose of epinephrine was 5.0 minutes (95% CI: 4.7 minutes, 5.4 minutes) for the IO group and 8.8 minutes (95% CI: 6.6 minutes, 10.9 minutes) for the PIV group ($p < 0.001$). There were a total of 2,879 IO attempts with 2,753 IOs successfully placed in 2,601 patients. The first pass IO success rate was 95.6 percent (2,753/2,879).

CONCLUSION: In the setting of OHCA, the time to administer the first dose of epinephrine was faster in the IO access group when compared to PIV access group. The prehospital use of IO vascular access for time-dependent medical conditions is recommended.

Reference:

Ross, E.M., Mapp, J., Kharod, C., Wampler, D.A., Velasquez, C. and Miramontes, D.A. (2016) Time to epinephrine in out-of-hospital cardiac arrest: A retrospective analysis of intraosseous versus intravenous access. *American Journal of Disaster Medicine*. 11(2), p.119-123.

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