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Intraosseous (IO) vs Intravenous (IV) Vascular Access for Out of Hospital Cardiac Arrest.

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Over 300,000 Americans every year experience an out-of-hospital cardiac arrest (OHCA) (Benjamin EJ 2019). Of these 300,000+ patients only 10.6% of them survive to hospital discharge. Advanced Cardiac Life Support (ACLS) has been suggested to improve survival following an OHCA (Neumar, Otto et al. 2010). Current ACLS guidelines recommend obtaining vascular access, however, offer little suggestion as to which type of access device should be used. It is our belief that using an Intraosseous vascular access device will lead to shorter time to medication delivery and increased rates of return of spontaneous circulation (ROSC) compared to Intravenous vascular access. We conducted a retrospective chart review study with patients from Detroit Receiving Hospital and Sinai- Grace Hospital from January 1st, 2014 to December 31st, 2015. Over 3000 OHCA patients were used for this study. Only adult OHCA patients with vascular access obtained in the Emergency Department were included in the study for data analysis. Chart review was conducted by research personnel who underwent a standardized training procedure. The forms of vascular access, time to first ACLS medication, and return of ROSC were the main parameters recorded. Data analysis was conducted using IBM SPSS- Statistics (2015) or a similar statistical software. The initial data shows that there is no statistical difference in ROSC rates when comparing IO lines to IV lines. We are currently in the process of analyzing the data on time to first medication delivery between IO and IV lines. We intend to publish this study in peer reviewed journals, and to present the results at local, regional, and national presentations. It is our intention that this study will serve as a pilot study for future randomized control trials comparing different vascular access devices for OHCA patients in the Emergency Department.

References:

Benjamin EJ, M. P., Alonso A, & Bittencourt MS. (2019). "Heart disease and stroke Statistics—2019 update: A report from the American Heart Association.".

Neumar, R. W., et al. (2010). "Part 8: adult advanced cardiovascular life support: 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care." Circulation **122**(18 Suppl 3): S729-767.