

IO catheterization using an automatic rotary insertion device was performed more rapidly and successfully than jugular venous catheterization using a cut-down technique in canine cadaver” Allukian et al (2017).

Abstract

OBJECTIVE: To compare the time required and the success rate of personnel with 4 different levels of experience to place a humeral intraosseous (IO) catheter versus a jugular venous catheter (IV) in cadaver dogs.

DESIGN: Prospective study.

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SETTING: Veterinary university teaching hospital.

INTERVENTIONS: Canine cadavers from recently euthanized dogs were obtained from the cadaver donation program between May and December 2014. Catheter placers (CPs) with varying clinical experience, including a first year emergency and critical care resident, a senior emergency veterinary technician (VTS certified), a final year veterinary student, and an ACVECC diplomate, participated in the study. Each CP catheterized a total of 6 dogs so that there was a total of 6 IO and 6 IV catheters placed, by automatic rotary insertion device (with an EZ-IO gun) and vascular cut-down technique, respectively, for each CP. Time for IO catheterization and IV catheterization was recorded and compared. The success of IO catheterization and IV catheterization was verified by visualization of an injection of iodinated contrast material under fluoroscopy within the medullary cavity or vessel.

ANIMALS: Twenty-four canine cadavers.

MEASUREMENTS AND MAIN RESULTS: Outcomes were analyzed using the Wilcoxon rank-sum test and the Kruskal-Wallis one-way analysis of variance. The median time for all IO catheterization operators was faster at 55.4 seconds (range 15.0-153.0 s) compared to the median time for all IV catheterization operators at 217.3 seconds (range 55.6-614 s). The success rate for IO and IV was equal at 87.5%.



CONCLUSION: IO catheterization using an automatic rotary insertion device was performed more rapidly and successfully than jugular venous catheterization using a cut-down technique in canine cadaver. These findings suggest IO catheterization may be more efficient for gaining vascular access in the appropriate emergency clinical situations when preexisting IV access does not exist.

Reference:

Allukian, A.R., Abelson, A.L., Babyak, J. and Rozanski, E.A. (2017) Comparison of time to obtain intraosseous versus jugular venous catheterization on canine cadavers. *Journal of Veterinary Emergency and Critical Care*. August 10th. .

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