

Abstract:

INTRODUCTION: We sought to determine whether ultrasound-guided arterial cannulation (USGAC) is more successful than traditional radial artery cannulation (AC) as performed by emergency medicine (EM) residents with standard ultrasound training.

METHODS: We identified 60 patients age 18 years or older at a tertiary care, urban academic emergency department who required radial AC for either continuous blood pressure monitoring or frequent blood draws. Patients were randomized to receive radial AC via either USGAC or traditional AC. If there were three unsuccessful attempts, patients were crossed over to the alternative technique. All EM residents underwent standardized, general ultrasound training.

RESULTS: The USGAC group required fewer attempts as compared to the traditional AC group (mean 1.3 and 2.0, respectively; $p < 0.001$); 29 out of 30 (96%) successful radial arterial lines were placed using USGAC, whereas 14 out of 30 (47%) successful lines were placed using traditional AC ($p < 0.001$). There was no significant difference in length of procedure or complication rate between the two groups. There was no difference in provider experience with respect to USGAC vs traditional AC.

CONCLUSION: EM residents were more successful and had fewer cannulation attempts with USGAC when compared to traditional AC after standard, intern-level ultrasound training.

Reference:

Wilson, C., Rose, D., Kelen, G.D., Billioux, V. and Bright, L. (2020) Comparison of Ultrasound-Guided Vs Traditional Arterial Cannulation by Emergency Medicine Residents. *The Western Journal of Emergency Medicine*. 21(2), p.353-358. doi: 10.5811/westjem.2019.12.44583.

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