Abstract:

Background: Difficult intravenous access (DIVA) is a common problem in Emergency Departments (EDs), yet the prevalence and clinical impact of this condition is poorly understood. Ultrasound-guided peripheral intravenous catheter (USGPIV) insertion is a successful modality for obtaining intravenous (IV) access in patients with DIVA.

Objectives: We aimed to describe the prevalence of DIVA, explore how DIVA affects delivery of care, and determine if nurse insertion of USGPIV improves care delays among patients with DIVA.

Methods: We retrospectively queried the electronic medical record for all ED patients who had a peripheral IV (PIV) inserted at a tertiary academic medical center from 2015 to 2017. We categorized patients as having DIVA if they required ≥3 PIV attempts or an USGPIV. We compared metrics for care delivery including time-to-IV-access, time-to-laboratory-results, time-to-IV-analgesia, and ED length of stay (LOS) between patients with and without DIVA. We also compared these metrics in patients with DIVA with a physician-inserted USGPIV versus those with a nurse-inserted USGPIV.

Results: A total of 147,260 patients were evaluated during the study period. Of these, 13,192 (8.9%) met criteria for DIVA. Patients with DIVA encountered statistically significant delays in time-to-IV-access, time-to-laboratory-results, time-to-IV-analgesia, and ED LOS compared to patients without DIVA (all p < 0.001). Patients with nurse-inserted USGPIVs also had statistically significant improvements in time-to-IV-access, time-to-laboratory-results, time-to-IV-analgesia, and ED LOS compared to patients with physician-inserted USGPIVs (all p < 0.001).

Conclusion: DIVA affects many ED patients and leads to delays in PIV access-related care. Nurse insertion of USGPIVs improves care in patients with DIVA.

Reference: