Peripheral IV catheter failure rates reach an unacceptable level

Most patients admitted to the hospital via the emergency department (ED) do so with a peripheral intravenous catheter/cannula (PIVC). Many PIVCs develop postinsertion failure (PIF)” Carr et al (2018).

Abstract:

BACKGROUND: Most patients admitted to the hospital via the emergency department (ED) do so with a peripheral intravenous catheter/cannula (PIVC). Many PIVCs develop postinsertion failure (PIF).

OBJECTIVE: To determine the independent factors predicting PIF after PIVC insertion in the ED.

METHODS: We analyzed data from a prospective clinical cohort study of ED-inserted PIVCs admitted to the hospital wards. Independent predictors of PIF were identified using Cox proportional hazards regression modeling.

RESULTS: In 391 patients admitted from 2 EDs, the rate of PIF was 31% (n=118). The types of PIF identified were infiltration, occlusion, pain and/or peripheral intravenous assessment score >2 (ie, the hospital’s assessment of PIVC phlebitis), and dislodgement (ie, accidental securement device failure or purposeful removal). Of the PIVCs that failed, infiltration and occlusion combined were the most common causes of PIF (n=55, 47%). The median PIVC
dwell time was 28.5 hours (interquartile range, 17.4-50.8 hours). The following variables were associated with increased risk of PIF: being an older patient (for a 1-year increase, hazard ratio \([HR]\), 1.02; 95% confidence interval \([CI]\), 1.01-1.03; \(P=.0001\)); having an Australian Triage Scale score of 1 or 2 compared to a score of 3, 4, or 5 (HR, 2.04; 95% CI, 1.39-3.01; \(P=.0003\)); having an ultrasound-guided PIVC (HR, 6.52; 95% CI, 2.11-20.1; \(P=.0011\)); having the PIVC inserted by a medical student (\(P=.0095\)); infection prevention breaches at insertion (\(P=.0326\)); and PIVC inserted in the ante cubital fossa or the back of hand compared to the upper arm (\(P=.0337\)).

**CONCLUSION:** PIF remains at an unacceptable level in both traditionally inserted and ultrasound-inserted PIVCs.

Clinical trial registration: Australian and New Zealand Trials Registry (ANZCTR12615000588594).

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**Reference:**