Abstract:

Objective: To compare the dwell times of ultrasound-guided and non-ultrasound-guided short peripheral intravenous catheters in hospitalized children.

Methods: This was a retrospective analysis of data from 256 ultrasound-guided and 287 traditional peripheral intravenous catheters placed in hospitalized children between 1 September 2016 and 31 October 2016 at a free-standing children’s hospital with a 10-member vascular access team. A two-sample independent t test and Kaplan-Meier estimator were used to assess differences in dwell times between the ultrasound-guided peripheral intravenous catheters and non-ultrasound-guided peripheral intravenous catheters. Child age, peripheral intravenous catheter location, and subjective difficulty of placement were also analyzed.

Results: There was a significant difference in mean hours of dwell time for ultrasound-guided versus non-ultrasound-guided peripheral intravenous catheters (96.06 vs 59.39, p < 0.001). Mean increase in dwell time was 36.68 h (95% CI: [24.14-49.22]). Median dwell times (50% probability of survival) for ultrasound-guided and non-ultrasound-guided peripheral intravenous catheters were 118 h (95% CI: [95-137]) and 71 h (95% CI: [61-79]), respectively. None of the additional covariates were significant predictors of dwell time.

Conclusion: Peripheral intravenous catheters placed using ultrasound-guided methods had a significantly longer dwell time than those placed using non-ultrasound-guided methods in a cohort of hospitalized pediatric patients. This is in line with the findings in the adult literature and may suggest a need to increase the use of ultrasound-guided method for peripheral intravenous catheter placement in pediatric practice.

Reference: