Our aim was to validate prior need for an advanced technique to establish intravenous access as a predictor of failure to achieve access via traditional methods and to estimate the risk difference associated with this finding” Witting et al (2019).

Abstract:

BACKGROUND: When intravenous access cannot be established using traditional methods of inspection/palpation, advanced methods are often required, leading to substantial delays in care. Knowing the likelihood of intravenous access failure can improve emergency department (ED) efficiency.

OBJECTIVE: Our aim was to validate prior need for an advanced technique to establish intravenous access as a predictor of failure to achieve access via traditional methods and to estimate the risk difference associated with this finding.

METHODS: We re-analyzed data collected for a clinical trial that randomized ED patients requiring intravenous access to one of two types of intravenous catheter; gauge size was selected by the inserter. The re-analysis pools data from both groups to examine predictors of failure to establish intravenous access by traditional methods, with failure defined as abandonment or use of an advanced technique (ultrasound guidance or external jugular vein catheterization). Confidence intervals for the difference between proportions were calculated using a normal binomial approximation.

RESULTS: We obtained data from 600 patients, with a median age of 52 years (interquartile range 36-63 years). We noted failure of traditional methods in 28 (4.7%) patients, including 17 of 109 (16%) with prior need for advanced techniques. The risk difference for prior need for advanced techniques versus no prior difficulty was 14% (95% confidence interval 7-22).

CONCLUSIONS: Patients with a prior need for advanced techniques were 14% more likely to have failure of intravenous access by traditional methods than those without prior difficulty.
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