The purpose of this study was to compare sonographically guided vascular access using standard and echo-enhanced needles in a variety of tissue-simulating vascular phantoms.” Crum et al (2014).

Reference:


Abstract:

OBJECTIVES: The purpose of this study was to compare sonographically guided vascular access using standard and echo-enhanced needles in a variety of tissue-simulating vascular phantoms.

METHODS: We conducted a prospective single-blinded observational study at an academic medical center. All participants performed real-time sonographically guided vascular access using both a standard 18-gauge needle and an echo-enhanced needle in both in-plane and
out-of plane approaches on 3 different vascular access phantoms. The outcome measures included time to dye flash, first-pass success, visibility of the needle tip at the time of puncture, total number of attempts, number of redirections, and incidence of posterior wall penetration.

RESULTS: A total of 408 sonographically guided cannulations were performed by 34 participants. The time from needle stick to dye flash, first-pass success, and the total number of attempts were not significantly different between the two needles (P> .05). The tip of the needle was seen at the time of puncture in 79% of attempts with the standard needle (95% confidence interval, 68%-86%) and in 86% of attempts with the echo-enhanced needle (95% CI, 76%-92%), although this difference was not significant (P= .103). The posterior wall was penetrated with the standard needle in 14% of attempts (95% CI, 9.6%-20%) and in 6% of attempts with the echo-enhanced needle (95% CI, 3.5%-11%), and the difference was significant (P < .02).

CONCLUSIONS: Echo-enhanced needles decreased the incidence of posterior wall punctures when compared to standard needles during sonographically guided vascular access. However, there were no significant differences in other sonographically guided vascular access metrics.

Other intravenous and vascular access resources that may be of interest (External links - IVTEAM has no responsibility for content).