The aim of this observational cohort study was to investigate whether adding guidance markers on a US system would increase the accuracy of US-guided needle tip placement compared to no guidance markers” Thorn et al (2016).

Abstract:
Introduction: Peripheral ultrasound (US)-guided vascular access is gaining popularity. Though studies have demonstrated that US-guided vascular access has several advantages, the procedure is challenging to even the most experienced operator. The aim of this observational cohort study was to investigate whether adding guidance markers on a US system would increase the accuracy of US-guided needle tip placement compared to no guidance markers.

Methods: A total of 18 physicians and 12 nurses familiar with US-guided vascular access volunteered to participate. Two identical US systems were used. System A was as manufactured. System B included three guide markers drawn on the transducer and screen. The participants performed six needle insertions in a gelatin phantom with three imbedded targets. First participants used US system A and then US system B. Primary endpoint was horizontal distance between needle tip and target. Secondary endpoint was participant’s subjective feeling of advantage of the guidance markers measured on a Likert scale.

Results: Guidance markers on the US system significantly increased the accuracy of needle placement on all three targets individually (p = 0.00) and on overall placement, (inter-quartile range 3.21 mm vs. 0.49 mm, p = 0.00). In addition, the use of guidance markers eliminated the difference in accuracy between physicians and nurses, respectively. All participants evaluated the guidance markers to be helpful during the needle insertions.

Conclusions: Adding guidance markers to the US system significantly increased the accuracy of needle placement in the horizontal plane during simulated US-guided vascular access using a phantom.

Disclosures: Financial support: S.T. has received funding from the Danish Cancer Society and the Lundbeck Foundation covering salary. The authors do not have a financial relationship with the organizations sponsoring this study.

Conflict of interest: E.S has been giving lectures for BK Medical and received a fee.

Reference:
How to increase the accuracy of ultrasound-guided vascular access?

DOI:10.5301/jva.5000614
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