The objective of this study was to validate the transfer of ultrasound-guided Internal Jugular Central Venous Catheterization (US-IJCVC) placement skills from training on a Dynamic Haptic Robotic Trainer (DHRT), to placing US-IJCVCs in clinical environments” Chen et al (2019).

Abstract:

BACKGROUND: The objective of this study was to validate the transfer of ultrasound-guided Internal Jugular Central Venous Catheterization (US-IJCVC) placement skills from training on a Dynamic Haptic Robotic Trainer (DHRT), to placing US-IJCVCs in clinical environments. DHRT training greatly reduces preceptor time by providing automated feedback, standardizes learning experiences, and quantifies skill improvements.

METHODS: Expert observers evaluated DHRT-trained (N = 21) and manikin-trained (N = 36) surgical residents on US-IJCVC placement in the operating suite using a US-IJCVC evaluation form. Performance and errors by DHRT-trained residents were compared to traditional manikin-trained residents.

RESULTS: There were no significant training group differences between unsuccessful insertions (p = 0.404), assistance on procedure (p = 0.102), arterial puncture (p = 0.998), and average number of insertion attempts (p = 0.878). Regardless of training group, previous central line experience significantly predicted whether residents needed assistance on the procedure (p = 0.033).

CONCLUSION: The results failed to show a statistical difference between DHRT- and manikin-trained residents. This study validates the transfer of skills from training on the DHRT system to performing US-IJCVC in clinical environments.

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