The aim of this study was to evaluate the effectiveness of a simulation-based training program for improving novice technical performance during ultrasound-guided internal jugular CVC placement” Corvetto et al (2017).

Abstract

BACKGROUND: Current evidence supports the utility of simulation training for bedside procedures such as ultrasound-guided jugular central venous catheter (CVC) insertion. However, a standardized methodology to teach procedural skills has not been determined yet. The aim of this study was to evaluate the effectiveness of a simulation-based training program for improving novice technical performance during ultrasound-guided internal jugular CVC placement.

METHODS: Postgraduate year 1 (PGY-1) residents from anesthesiology, emergency medicine, cardiology, ICU, and nephrology specialties were trained in four deliberate practice sessions. Learning objectives included principles of ultrasound (US), preparation (gown, glove, draping), procedural skills I (US scanning and puncture), and procedural skills II (catheter insertion). CVC technical proficiency was tested pre- and post-training using hand-motion
Simulated ultrasound-guided jugular central venous catheter placement

analysis with the Imperial College Surgical Assessment Device (ICSAD) and a global rating scale (GRS).

RESULTS: Thirty-five PGY-1 residents successfully completed the program. These novices’ GRS scores improved significantly after the training (P < 0.001). Total path length measured with the ICSAD decreased significantly after the training (P = 0.008). Procedural time decreased significantly after training from 387 (310-501) seconds to 200 (157-261) seconds (median and interquartile range) (P = 0.029).

CONCLUSION: This simulation-training program based on deliberate practice significantly increased the technical skills of residents in US-guided short-axis, out-of-plane internal jugular CVC placement. Data also confirm the validity of the ICSAD as an assessment tool for ultrasound-guided internal jugular CVC placement learning.

Reference:


Thank you to our partners for supporting IVTEAM