

IN PRACTICE

A92

ULTRASOUND CANNULATION TEACHING FOR PA'S AND ACP'S USING VENEPUNCTURE ARM

Louise Brown¹, Harvey Dalton¹; ¹*Cumberland Infirmary, North Cumbria Integrated Care Nhs Ft, Carlisle, United Kingdom*

Correspondence: ljbrown@doctors.org.uk

10.54531/BXOP1789

Introduction: Failed cannulation is an issue for patients and clinicians and means patients will not receive medications needed. Depending on staffing levels, it can be difficult to find a suitably trained colleague to attempt the skill, resulting in a telephone call to ITU for help. This adds to the ITU registrar on calls workload. Ultrasound guidance can improve patient outcomes and skill success [1]. Physicians Associates (PA's) and Advanced Care Practitioners (ACP's) are expected to cannulate patients, but are rarely taught advanced skills for cannulation. We sought to teach ultrasound cannulation using simulation to this population.

Methods: Simulation was utilised to teach ultrasound cannulation techniques. Upper limb vasculature was recapped, and ultrasound was used to look at the vasculature of the

candidates and instructors, noting the anatomical differences between people and the look of different structures (veins, arteries, muscles, etc) under ultrasound. Venepuncture arms compatible with ultrasound were used to practise cannulation of vessels. Peyton's 4-step approach was used to teach the skill itself, comprising 4 steps of: demonstration; deconstruction; comprehension; and execution [2]. Confidence levels before and after the session were recorded, and followed up 2 weeks after the teaching session.

Results: Twelve students attended the course, 8 of which had never used ultrasound before. 80% felt their confidence levels were a 1 on a scale of 1-10 (1 being the lowest possible score). During the course, participants appeared to increase in confidence throughout the day. Following the session, 60% rated their confidence as 9/10 with the remaining 40% being above 6/10. After 2 weeks, 1 participant was lost to follow up, but the remaining 11 still felt confident at ultrasound cannulation having had a chance to practise on real patients (with supervision at first). Confidence levels remained above 7/10 for all 11.

Discussion: Traditionally, ultrasound cannula teaching has been self-motivated and in the clinician's own time/when opportunities arose on the job. Teaching the skill has been shown to improve success rates amongst novices and experienced operators¹. The use of simulation reduced the risk to patients and allowed for trial and error [3]. We stated that the first-time using ultrasound guidance on a patient must be supervised, and all 11 used ultrasound on a patient under supervision in the 2 weeks that followed with confidence levels remaining high. The course appeared to be a success and may reduce the need for escalation to ITU in future.

Ethics statement: Authors confirm that all relevant ethical standards for research conduct and dissemination have been met. The submitting author confirms that relevant ethical approval was granted, if applicable.

REFERENCES

1. Stolz LA, Stolz U, Howe C, Farrell JJ, Adhikari S. Ultrasound-guided peripheral venous access: a meta-analysis and systematic review. *The Journal of Vascular Access*. 2015;16(4):321-326.
2. Peyton. Teaching in the Theatre. In: J. W. R. Peyton. editor. *Teaching and Learning in Medical Practice*, Manticore Publishers Europe. Rickmansworth. 1998.
3. Greene AK, Zurakowski D, Puder M, Thompson K. Determining the need for simulated training of invasive procedures. *Advances in Health Sciences Education*. 2006;11:41-49.