Abstract:

Introduction: Radial artery cannulation (RAC) is a common procedure in Intensive Care Units (ICU); radial catheters for ICU patients require increased durability to collect blood samples and to guarantee continuous hemodynamic monitoring. Failure in catheter functionality needs catheter replacement, impacting on staff workload, costs, and patient safety and discomfort.

Methods: prospective non-randomised cohort study on adult ICU patients describing intensivists and critical care nurses’ approach in radial artery catheterization.

Results: A sample of 103 radial artery cannulations was observed. Catheterization was performed blind in 71 patients (68.9%) and with ultrasound guidance (USG) in 32 (31.1%); majority of blind inserted RAC were at a distance between 0 and 3.9 cm from wrist joint (77.5%) while catheters inserted from 4 to 10 cm were mainly positioned with USG (84.4%). Radial catheters inserted with USG at a distance of 4 to 10 cm from wrist joint had an in-situ time double than those inserted blind (8.2 ± 7.5 vs 4.8 ± 7.3, p < 0.038).

Conclusions: As recommended by current evidence and guidelines, USG represents a valuable support during arterial catheterization and is recommended in adult patients with clinical signs of shock, obese, swelling, and in the paediatric population. RAC in the forearm proximally, at a distance of at least 4 cm from wrist, could increase catheter durability and functionality for ICU patients. USG for cannulation in this forearm area is mandatory because of the deeper course of the radial artery.

Reference: