

Category : **Cardiovascular: Monitoring**

A164 - Assessment of radial and ulnar artery size and flows in intensive care patients with identification of patients at risk of limb ischaemia.

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Introduction:

Radial artery cannulation allows for continuous blood pressure monitoring in Intensive Care Unit (ICU)¹. Studies have assessed for ischemic complications of radial artery cannulation², but there is lack of evidence using ultrasound to determine if limbs at risk of ischaemia are being cannulated and for the presence of collateral ulnar flows

The objective was to assess collateral ulnar flow, compare flow and size of radial and ulnar arteries and to detect limbs at risk of distal ischaemia using ultrasound in ICU patients

Methods:

A prospective cohort study was conducted at William Harvey Hospital ICU, UK. From 1/12/2019-9/3/2020 data was collected from patients on ICU. Vascular probe ultrasound was used to determine the size of radial and ulnar arteries bilaterally, presence of adequate colour flow and flow velocity through each vessel. Complications associated with the arterial line were noted

Results:

53 Patients were included. 34 patients had radial arterial lines in situ. The mean longitudinal diameter for radial and ulnar arteries was 0.23cm and 0.22cm respectively, both larger than the internal diameter of cannulae used (0.8mm). 18 patients had at least one at risk limb (≥ 1 artery with anything less than 'good' visual flow on colour doppler). 50% had an arterial line present in at risk limb. There were no major complications noted

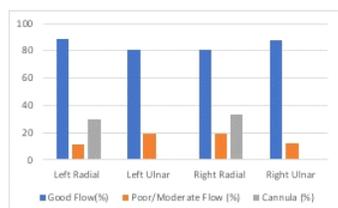
Conclusion:

24% of patients had at least one 'at risk' limb with 15% of upper limbs having moderate/poor collateral ulnar flow. This indicates a significant proportion of patients on ICU at risk of digital ischaemia and the need for assessment of radial and ulnar arterial size and flow before cannulation

References:

1. Marino, P., 2014. *The ICU Book*. 4th ed. Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins, pp.123-134.
2. Scheer, B., Perel, A., & Pfeiffer, U. J. 2002. Clinical review: complications and risk factors of peripheral arterial catheters used for haemodynamic monitoring in anaesthesia and intensive care medicine. *Critical care*(London, England), 6(3), 199–204

Image :



Flow in Upper Limb Arteries