



This is the first level one systematic review to demonstrate strong evidence for the use of ultrasound guidance in radial artery cannulation in adult and paediatric populations” White et al (2016).

Abstract:

BACKGROUND: Ultrasound is a well-validated adjunct to central venous cannulation; however, previous reviews of ultrasound-guided radial artery cannulation have been inconclusive. The aim of this study was to assess the use of ultrasound in radial artery cannulation in adult and paediatric populations.

METHODS: A systematic search of five major databases for all relevant articles published until November 2015 was conducted. Randomized controlled trials of radial artery cannulation with and without ultrasound guidance were included. All studies were assessed for level of evidence and risk of bias. Studies were grouped in adult and paediatric populations for each outcome. A meta-analysis was performed to analyse the data.

RESULTS: Eleven randomized controlled trials (six adult and five paediatric) were found. In both the adult and paediatric populations, there was high-level evidence for significantly improved first-attempt success rate and number of attempts with the use of ultrasound guidance.

CONCLUSIONS: This is the first level one systematic review to demonstrate strong evidence

for the use of ultrasound guidance in radial artery cannulation in adult and paediatric populations. In the adult population, ultrasound use significantly increased first-attempt success rate, which subsequently resulted in a significant reduction in the number of attempts. The benefits of ultrasound were also shown in the paediatric population, with a significant increase in first-attempt success rate and reduction in the number of attempts. The use of ultrasound as an adjunct to radial arterial cannulation should now be considered best practice.

Reference:

White, L., Halpin, A., Turner, M. and Wallace, L. (2016) Ultrasound-guided radial artery cannulation in adult and paediatric populations: a systematic review and meta-analysis. *British Journal of Anaesthesia*. 116(5), p.610-7.

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