

Dynamic ultrasound-guided short-axis needle tip navigation is a novel technique for vascular access” Hanada et al (2017).

Summary

Dynamic ultrasound-guided short-axis needle tip navigation is a novel technique for vascular access. After venipuncture, the needle and catheter are further advanced within the vessel lumen under real-time ultrasound guidance with constant visualisation of the needle tip in the short-axis view. This can minimise the risk of transfixing the cannulated vessel. We compared two techniques for non-visible saphenous vein cannulation under general anaesthesia in children weighing ≥ 3 kg and less than four years of age: dynamic ultrasound-guided short-axis needle tip navigation technique (ultrasound group) vs. landmark technique.

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Venous cannulation was performed by three experienced anaesthetists. The primary outcome measure was first-attempt success rate. Success rate within 10 min was a secondary outcome. A total of 102 patients were randomly allocated to either the ultrasound group or the landmark group. First-attempt success rate was 90% in the ultrasound group compared with 51% in the landmark group, $p < 0.001$, difference 39%, 95% confidence interval (CI) of the difference 23–55%. Success rate within 10 min was 92% in the ultrasound group compared with 63% in the landmark group, $p = 0.001$, difference 29%, 95%CI of the difference 14–45%. We conclude that, when performed by experienced anaesthetists, the dynamic ultrasound-guided short-axis needle tip navigation technique improved non-visible saphenous vein cannulation in children compared with the landmark technique.

Reference:

Hanada, S., Van Winkle, M.T., Subramani, S. and Ueda, K. (2017) Dynamic ultrasound-guided short-axis needle tip navigation technique vs. landmark technique for difficult saphenous vein access in children: a randomised study. *Anaesthesia*. October 6th. .



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