

Ultrasound-guided peripheral intravenous line (PIV) placement is associated with increased success rates, decreased time to cannulation, and fewer skin punctures than traditional, landmark-based techniques” Gottlieb et al (2018).

Abstract:

Ultrasound-guided peripheral intravenous line (PIV) placement is associated with increased success rates, decreased time to cannulation, and fewer skin punctures than traditional, landmark-based techniques. However, it is unclear which technique is best. This review compares the short-axis (SA) and long-axis (LA) techniques for PIV placement. PubMed, Embase, Scopus, the Cochrane Database of Systematic Reviews, the Cochrane Central Register of Controlled Trials, and bibliographies of selected articles were assessed for prospective trials evaluating the first pass success rate of SA vs LA ultrasound-guided PIV placement. Secondary outcomes included time to placement, number of needle passes, and incidence of posterior wall puncture. Data were double extracted into a predefined worksheet and quality was assessed using the Cochrane Risk of Bias tool. Three studies (n = 198) were identified. SA was successful in 125/128 placements (97.7%) and LA technique was successful in 114/128 placements (89.1%). There was an odds ratio of 5.35 (95% CI: 1.46-19.58) in favor of the SA technique. There was no difference in the mean number of needle passes. Time to insertion varied between studies. The existing literature suggests that the SA technique is associated with greater success than the LA technique. Based upon the data, short-axis may be considered as the first approach for ultrasound-guided PIV placement among providers comfortable with both techniques, though further studies are needed.

Reference:

Gottlieb, M., Holladay, D. and Peksa, G.D. (2018) Comparison of Short- vs Long-axis Technique for Ultrasound-guided Peripheral Line Placement: A Systematic Review and Meta-analysis. *Cureus*. 10(5), p.e2718.



doi: 10.7759/cureus.2718.