

14.1 - Antibradycardia Pacing

Axillary vein puncture versus cephalic vein cutdown for cardiac implantable electronic device implantation: a meta-analysis

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Introduction: Cephalic vein cutdown (CVC) and axillary vein puncture (AVP) are both recommended for transvenous implantation of leads for cardiac implantable electronic devices (CIEDs). Nonetheless, it is still debated which of the two techniques has a better safety and efficacy profile.

Methods: We systematically searched Medline, Embase and Cochrane electronic databases up to September 5th, 2022, for studies that evaluated the efficacy and safety of AVP and CVC reporting at least one clinical outcome of interest. The primary endpoint was acute procedural success. The effect size was estimated using a random-effect model as Risk Ratio (RR) and relative 95% Confidence Interval (CI).

Results: Overall, 8 studies were included, which enrolled 1926 patients and 3532 transvenous lead implants [66.3% (n=1277) males with an average age of 72.3 ± 14.8 years]. Compared to CVC, AVP showed a significant increase in the primary endpoint (95.7 % vs 76.1 %; RR: 1.24; 95% CI: 1.09-1.40; $p=0.001$) (Figure 1). Total procedural time (Mean Difference [MD]: -8.25 min; 95%CI: -10.23- -6.27; $p<0.0001$; $I^2=0\%$) and venous access time (MD: -6.24 min; 95%CI: -7.01- -5.47; $p<0.0001$; $I^2=0\%$) were significantly shorter with AVP compared to CVC. No differences were found between AVP and CVC for incidence of pneumothorax (RR: 0.72; 95% CI: 0.13 - 4.0; $p=0.71$), lead failure (RR: 0.58; 95% CI: 0.23-1.48; $p=0.26$), pocket hematoma/bleeding (RR: 0.58; 95% CI: 0.15- 2.23; $p=0.43$), device infection (RR: 0.95; 95% CI: 0.14- 6.60; $p=0.96$) and fluoroscopy time (MD: -0.24 min; 95%CI: -0.75- 0.28; $p=0.36$).

Conclusion: Our meta-analysis suggests that AVP may improve procedural success and reduce total procedural time and venous access time compared to CVC.

