



Increasing Success in Pediatric Peripheral Venous Access: Ultrasound Guidance in Children with Difficult Venous Access



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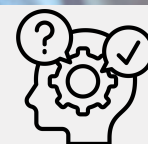
Introduction:



Peripheral intravenous (IV) cannulation is one of the most common yet challenging procedures in pediatrics, often causing distress for children, families, and healthcare providers. The Difficult Intravenous Access (DIVA) Score, adapted and validated for Brazilian children in 2015, helps predict first-attempt failure, enabling early identification of patients with difficult access. The use of adjunctive technologies such as ultrasound has emerged as an effective strategy to improve success rates, minimize multiple attempts, and increase procedural safety.

Methods:

This experience report was conducted in a private tertiary hospital in Brazil between March and December 2023. Children with a DIVA score ≥ 4 were included and underwent ultrasound-guided peripheral IV insertion. Procedures were performed by a nurse from the Pediatric Infusion Therapy Team, trained in image-guided vascular access. A portable ultrasound device was used to guide insertions, with prospective documentation of all cases.



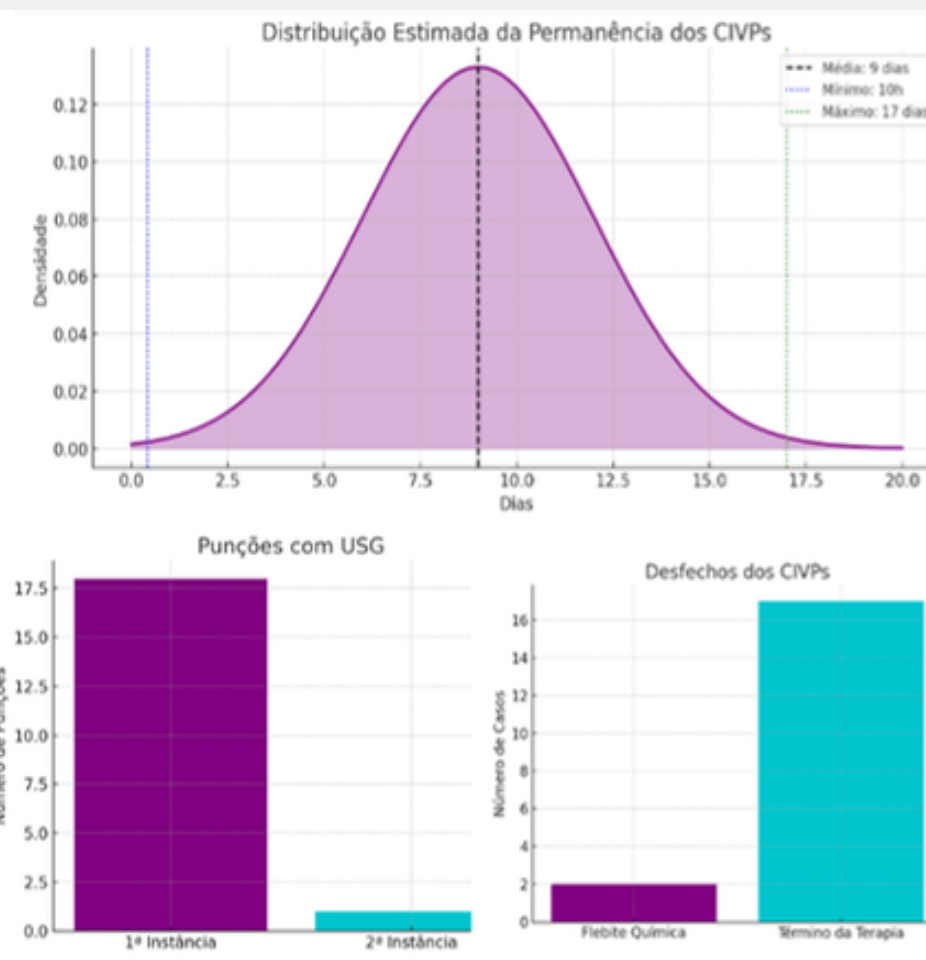
Conclusions:

Ultrasound guidance for peripheral IV access in children with difficult venous access proved to be safe, effective, and feasible in clinical practice, increasing success rates and enhancing patient comfort. These findings support the importance of structured nurse training and the implementation of institutional protocols to incorporate this technology into routine pediatric care.



Results:

Nineteen cannulations were attempted. Eighteen were successful on the first attempt, and one on the second. DIVA scores ranged from 4 to 10. The mean dwell time of catheters was 9 days (minimum 10 hours, maximum 17 days). Most cannulations were performed in the cephalic vein of the forearm (n=15). No splints were required. Catheter gauges ranged from 20G to 24G. Two cases of chemical phlebitis were recorded, associated with clarithromycin and ceftriaxone infusion. No insertion failures occurred.



Keywords: Peripheral venous access; Pediatric nursing; Ultrasound-guided puncture.
Conflict of Interest: None.