Extended dwell peripheral intravenous catheter is a feasible option for neonatal vascular access” Chenoweth et al (2018).

Abstract:

BACKGROUND: Establishing vascular access is a common neonatal intensive care unit procedure. The extended dwell peripheral intravenous (EPIV) catheter is a 6-cm and 8-cm silicone catheter for peripheral vein insertion, which is a newer vascular access device than peripherally inserted central catheters (PICCs) and peripheral intravenous (PIV) catheter. Extended dwell peripheral intravenous catheters have been widely used in adults but evidence in neonates is lacking.

PURPOSE: To explore indwell time, success rate, catheter-associated complications, and cost among EPIV catheters, PICCs, and PIV catheters in neonates.

METHODS: We retrospectively compare patient demographics, indwell time, success rate, and catheter-associated complications, and analyze the rate of hyaluronidase-treated intravenous (IV) fluid extravasation on neonates who had an EPIV catheter, a PICC, or a PIV catheter in a level III neonatal intensive care unit. We also estimate the insertion cost of these 3 vascular access devices on the basis of our hospital charges.

RESULTS: Extended dwell peripheral intravenous catheters were inserted in 432 neonates with an indwell time of 4.0 ± 2.3 (mean ± SD) days. Peripherally inserted central catheters
were inserted in 202 neonates with an average indwell time of 7.3 ± 4.4 (mean ± SD) days, which was longer than EPIV catheters (P < .001). Peripherally inserted central catheters had a higher success rate of 83.6% than 71.7% of EPIV catheters, meaning succeeded in lasting through the completion of therapy (P = .001). Peripherally inserted central catheters were associated with 4 cases of life-threatening complications; none was seen in the EPIV catheter group. The incidence of hyaluronidase-treated IV fluid extravasation was less in EPIV catheter recipients (1.2%) than in the PIV catheter recipients (3.9%) (P = .004); none was in the PICC group. Cost savings were noted with using an EPIV catheter.

IMPLICATIONS FOR PRACTICE: Extended dwell peripheral intravenous catheter is a feasible option for neonatal vascular access.

IMPLICATIONS FOR RESEARCH: These data provide a baseline for future studies to explore the efficacy and effectiveness of EPIV catheter in the neonates. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

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