

To retrospectively evaluate PICC placement for the technique used and the incidence of complications at a large pediatric tertiary care center” Dasgupta et al (2016).

Abstract:

BACKGROUND: Peripherally inserted central catheter (PICC) is among the most common procedures performed in children in the hospital setting. PICC insertion can be simplified with the use of a sheathed needle as an alternative to the modified Seldinger technique.

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OBJECTIVE: To retrospectively evaluate PICC placement for the technique used and the incidence of complications at a large pediatric tertiary care center.

MATERIALS AND METHODS: We retrospectively reviewed all PICC placements at a single institution over a 4-year period. We reviewed patient records for demographic data, PICC placement technique, catheter size and number of lumens, and the incidence of complications (i.e. multiple attempted puncture sites, phlebitis and vessel thrombosis). We analyzed complication rates between two placement techniques using a chi-square test.

RESULTS: We identified 8,816 successful PICC placements, 4,749 (53.9%) in males and 4,067 (46.1%) in females. The average age of the patients for which a line was placed was 5.6 years (range 1 day to 45 years). A direct sheathed needle puncture technique was used in 8,362 (94.9%) placements and a modified Seldinger technique was used in 454 (5.1%). Complications occurred in 312 (3.7%) of direct sheathed needle puncture placements versus 17 (3.7%) of modified Seldinger placements ($P = 0.99$). Multiple puncture sites were required in 175 (2.1%) attempted direct sheathed needle puncture placements compared with 8 (1.7%) attempted modified Seldinger placements ($P = 0.63$). Phlebitis occurred in 94 (1.1%) direct sheathed needle puncture lines versus 5 (1.1%) modified Seldinger placed lines ($P = 0.96$). Vessel thrombosis occurred in 43 (0.5%) direct sheathed needle puncture lines versus 4 (0.9%) modified Seldinger placed lines ($P = 0.30$).

CONCLUSION: The direct peel-away sheathed needle vessel puncture technique and the modified Seldinger technique used to place PICC lines in children have similar complication rates.

Reference:

Dasgupta, N., Patel, M.N., Racadio, J.M., Johnson, N.D. and Lungren, M.P. (2016)
Comparison of complications between pediatric peripherally inserted central catheter
placement techniques. Pediatric Radiology. April 28th. .

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