

A central location is ideal for the tip of a PICC. When this is not achievable, an intermediate location is preferable to a more peripheral position” Goldwasser et al (2017).

Abstract:

BACKGROUND: Peripherally inserted central catheters (PICCs) represent a mainstay of intravascular access in the neonatal intensive care setting when long-term vascular access is needed. Ideally, PICCs should be inserted and maintained in a central position with the tip ending in the superior or inferior vena cava. This is not always achievable, and sometimes the tip remains in a peripheral location. Higher complication rates have been reported with non-central PICCs; however these findings have not been confirmed in a solely neonatal series and PICCs with tips in peripheral veins have not been studied.

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OBJECTIVE: To compare complication rates and length of catheter duration related to PICC position in neonates.

MATERIALS AND METHODS: We conducted a retrospective analysis of all PICCs inserted in term and preterm infants in a tertiary neonatal intensive care unit between May 2007 and December 2009. A single pediatric radiologist reinterpreted the catheter tip site on initial anteroposterior (AP) chest radiographs and categorized sites as central (superior vena cava, inferior vena cava, brachiocephalic vein), intermediate (subclavian, axillary, common or external iliac veins), or peripheral (veins peripheral to axillary or external iliac veins). We analyzed complication rates and length of catheter duration among the three categories.

RESULTS: We collected data on a total of 176 PICCs. Infants with PICCs in a central location had a significantly lower complication rate (18/97, 19%) than those with the PICC tip in an intermediate (24/64, 38%) or peripheral (9/15, 60%) locations ($P=0.0003$). Length of catheter duration was noted to be longest with central, intermediate with intermediate, and shortest with peripheral PICC tip locations (17.7 ± 14.8 days for central vs. 11.4 ± 10.7

days for intermediate vs. 5.4 ± 2.5 days for peripheral, $P=0.0003$).

CONCLUSION: A central location is ideal for the tip of a PICC. When this is not achievable, an intermediate location is preferable to a more peripheral position.

Reference:

Goldwasser, B., Baia, C., Kim, M., Taragin, B.H. and Angert, R.M. (2017) Non-central peripherally inserted central catheters in neonatal intensive care: complication rates and longevity of catheters relative to tip position. *Pediatric Radiology*. August 1st. .

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