# Peripherally inserted central catheters: More than location, location, location?

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Dear Editor, The benefits of commencing total parenteral nutrition (TPN) within the first 6–12 hours of life in premature infants in the NICU are well recognised (Sweet et al., 2019). While the use of Umbilical Venous Catheters (UVC) and Umbilical Arterial Catheters (UAC) are appropriate for the first days, for those requiring long-term access after the immediate newborn period, peripherally inserted central catheters (PICC) in the NICU remain a fundamental part of care. The associated complications of PICC insertion are well described and a wide range of studies and initiatives have explored reducing complications at all points in the process. The Matching Michigan project (Bion et al., 2013) looked at standardising the processes around line insertion as a means of reducing infection rates in the UK. Dorling et al. (2019) looked at reducing sepsis and cost by reducing the number of PICC-line days.

So, it was with interest we read the article by Chen et al. (2020), a meta-analysis comparing the outcomes for PICC lines in a neonatal population. While there has long been debate regarding the relative risk factors associated with Upper Extremity (UE) or Lower Extremity (LE) placement (Tsai et al., 2011), authors found no association between location and worse outcomes. Only thrombosis appeared to be higher in the LE group, yet numbers remained low when compared to other outcomes. While the other outcomes may have more overall impact on the numbers of non-elective line removal, clinicians may wish to consider the potential morbidities associated with thrombosis in this population, when selecting PICC placement sites.

While this meta-analysis has limitations, which authors acknowledge, it should be of concern that 24.4-43.3% of PICC lines were removed non-electively. Although the meta-analysis fails to reveal a significant difference between UE and LE insertion sites in most outcomes, it does contribute to our understanding of the incidence and nature of those complications for the neonatal population. This knowledge can indeed contribute to our understanding of the management of infants with PICC lines.

It is worth noting that the oldest paper, from 2008, reported the highest infection rates. While there may be issues with the heterogeneity of the data, it is possible that neonatal practice has improved over time. Of greater interest is the ‘mechanical complications’ as the largest secondary outcome. It would be useful to conduct a deep dive into this data to establish if there is a common theme within this category. It is likely that a variety of PICC lines, infusion sets and pumps were in use. As such, it is conceivable that a small variation in practice may bring about a large change in this outcome.

While we await with interest the results of the RCT ‘Peripherally Inserted Central Catheter Insertion Site and Complication Rate in Neonates’ which is currently recruiting by Soraisham and team (Clinical Trials REB17-2317) the conclusions of this paper lead us to consider that management of PICC lines may be more significant in reducing the incidence of non-elective removal than insertion site.

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