Abstract:

Introduction: Complication rates associated with peripherally inserted central catheters (PICCs) in the general population are variable, and rates specific to pregnant women are unclear. We conducted a systematic review and meta-analysis to estimate the rate of PICC-associated complications in pregnant women.

Methods: We searched published literature for records discussing PICC use in pregnant or postpartum women. We included studies with primary data regarding rates of maternal complications from PICC use. The primary outcomes were maternal infection (cellulitis, sepsis), venous thromboembolism (VTE), or combined major complication rate. Secondary outcomes were superficial thrombophlebitis or mechanical failure. Meta-analysis was performed using STATA 12 with the METAN and METAPROP software routines. Pooled estimates with 95%CI were calculated using random-effects models.

Results: After the removal of duplicates, the primary search yielded 318 articles, with 5 being included for final analysis. The pooled rate of combined infectious and thromboembolic complications was 26% (95%CI = 6-53%). For secondary outcomes the pooled rate of infectious complications was 18% (95%CI = 4-39%), VTE 6% (95%CI = 0-18%), mechanical failure 7% (95%CI = 3-12%), and superficial thrombophlebitis 1% (95%CI = 0-3%). There was significant statistical heterogeneity between studies for all outcomes calculated.

Conclusion: There are limited data regarding complication rates due to PICC use in pregnancy, with a high level of heterogeneity among existing studies. The risk of VTE appears comparable to PICC-associated VTE in the non-pregnant hospitalized population. The risk of infection associated with PICC use was the most variable, with rates ranging from 4% to 37%. This suggests that infection risk may be modifiable and further studies are needed to assess interventions that may lower this risk.

Reference: