



IMPACT OF LOW-DOSE HEPARIN ON DURATION OF PERIPHERALLY INSERTED CENTRAL CATHETER AT THE NEONATAL INTENSIVE CARE UNIT: A META-ANALYSIS

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INTRODUCTION

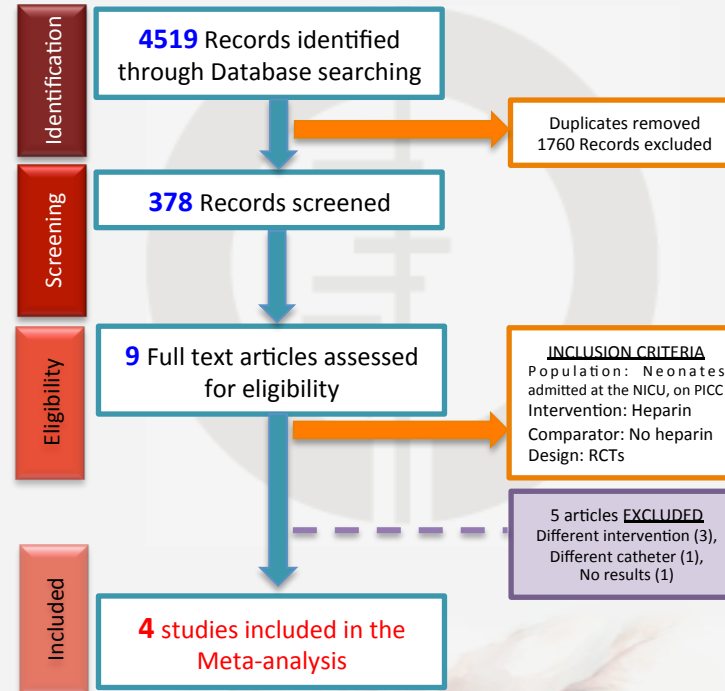
Peripherally inserted central catheter (PICC), one of the widely used central venous access at the NICU, is prone to catheter-related occlusion and thrombosis due to its small caliber lumen.

There are conflicting ideas on the use of heparin on PICC line to achieve maximum duration of patency and there have been no pooled neonatal studies yet. Findings of this study will be included in the unit's work instructions on maintenance care of PICC lines.

OBJECTIVES

To determine efficacy of continuous heparin infusion on maintenance of PICC among neonates at the NICU.

METHODOLOGY



RISK of BIAS ASSESSMENT TOOL: Cochrane Risk-of-bias 2.0
PRIMARY OUTCOME: Duration of catheter patency
SECONDARY OUTCOMES: Catheter-related occlusion, thrombosis, and bacteremia; other adverse events
STATISTICAL ANALYSIS: Mean difference (primary outcome) and pooled Risk Ratios (secondary outcome) estimated using random- or fixed-effects model

RESULTS

Pooled analysis from four included studies showed that continuous heparin infusion on PICC lead to **significantly longer duration of catheter patency** compared to control (MD=2.22, 95%CI=1.03-3.14, p-value<0.00001).

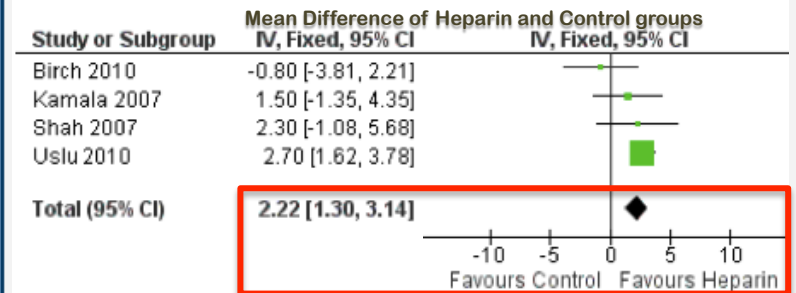


Figure 4: Effect of Heparin on duration of catheter patency

Heparin group also decreased risk of occlusion by half (RR=0.47, 95%CI=0.94, p-values=0.03) compared to control. Risk for adverse events like thrombosis, bacteremia, and mortality was comparable between the groups.

CONCLUSION and RECOMMENDATION

Continuous heparin infusion on PICC can **prolong duration of catheter patency by (2) days** and **reduce risk of catheter-related occlusion by 50%**, without having significant effect on incidence of adverse events.

This intervention should be part of PICC maintenance care policy at the NICU. Systematic review of heparin flushing can also be a window of opportunity.

