Peripheral intravenous catheter failure and complications in paediatrics patients are a significant problem globally” Indarwati et al (2019).

Abstract:

BACKGROUND: Most paediatric patients have at least one peripheral intravenous catheter insertion during their hospitalisation. Despite the important function of peripheral intravenous catheters for delivery of intravenous therapy, failure and complications rates are widely reported; however these results have not been synthesised.

OBJECTIVE: To provide an overall estimate of peripheral intravenous catheter failure and related complications in the paediatric population.

DESIGN: Systematic review and meta-analysis DATA SOURCES: The electronic databases, Cochrane Central Register of Controlled Trials, US National Library of Medicine National Institutes of Health, Cumulative Index of Nursing and Allied Health, Embase, Joanna Briggs Institute databases and ProQuest Dissertations and Theses, from January 2000 to January 2019 was conducted.

REVIEW METHODS: Observational studies and randomised controlled trials were independently screened by paired reviewers, and then eligible studies had data extracted and assessed for quality. Key outcomes of interest were any peripheral intravenous catheter complication, either as a composite measure or individually reported, including infiltration, extravasation, phlebitis, accidental removal, occlusion, leakage, local or catheter-associated infection. Results were pooled for analysis or summarised in a narrative synthesis.

RESULTS: Thirty-two studies met the inclusion criteria. Overall, the pooled incidence of peripheral intravenous catheter failure as a composite measure was 38% (n = 6,492; 95% CI 0.32 - 0.45) by device and 34% (n = 3,654, 95% CI 0.29 - 0.39) by patients. Infiltration was the most common individual reason for failure with 10% pooled incidence (95% CI 0.07 - 0.14) followed by accidental removal, occlusion, and leakage. Incidence of total phlebitis (any symptoms) was 5% (95% CI 0.02 - 0.10), with extravasation at 1% (95% CI 0.00 - 0.02). Studies ranged in methodological quality as appraised by the relevant tool.

CONCLUSIONS: Peripheral intravenous catheter failure and complications in paediatrics patients are a significant problem globally. Therefore, continued efforts from health care providers are required to decrease the incidence of these complications.
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