



POINT-OF-CARE ULTRASOUND (POCUS) FOR THE ASSESSMENT OF FLUID STATUS AMONG CHILDREN WITH CHRONIC KIDNEY DISEASE ON MAINTENANCE DIALYSIS: A SYSTEMATIC REVIEW AND META-ANALYSIS



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INTRODUCTION

Fluid status abnormalities are detrimental to dialysis patients. Yet a practical tool for estimating fluid status remains unavailable.

The value of POCUS for fluid evaluation in adult hemodialysis has been established; however, its use in pediatrics has yet to be validated.

This study aimed to evaluate the role of POCUS in assessing fluid status among children on maintenance dialysis.

METHODS

Primary outcome: Correlation of POCUS-derived measures: B-line score, Inferior Vena Cava (IVC) diameter, IVC collapsibility index, IVC/aorta ratio and corrected carotid flow time (CFTc) with fluid status.

RESULTS

Four studies showed positive correlation between B-line score and fluid overload. Pooled r demonstrated moderate correlation ($r = 0.46$; 95% CI: 0.21-0.71; $p < 0.001$).

Contrasting observations with IVC measures were reported.

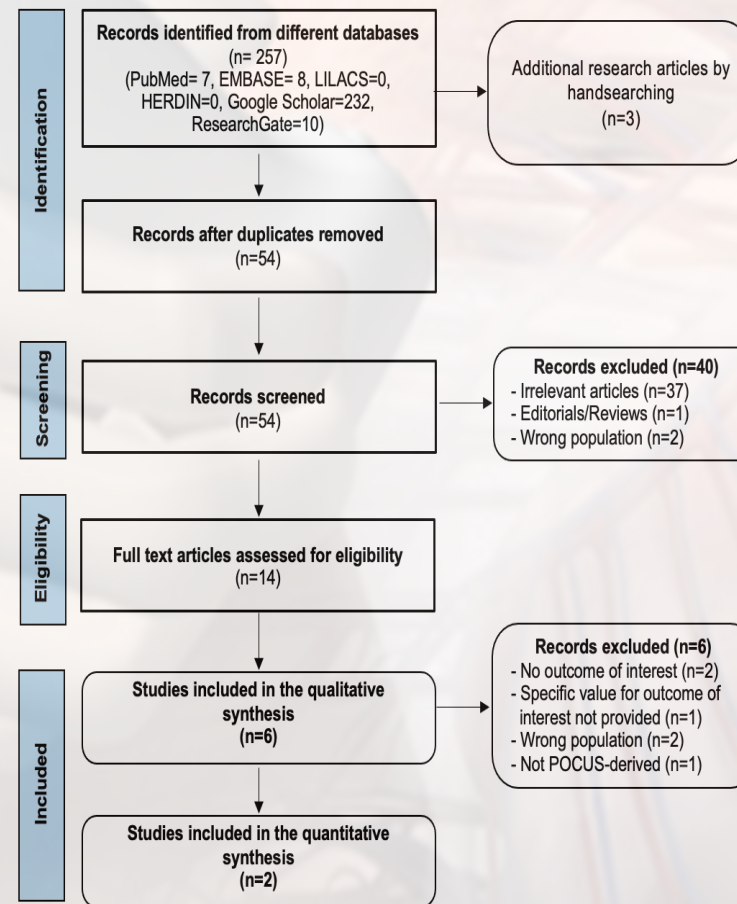
IVC/aorta ratio and CFTc correlated with fluid depletion during dialysis.

Combining parameters was valuable when both metrics supported the same conclusion.

CONCLUSION AND RECOMMENDATION

POCUS may serve as adjunct tool in assessing fluid status of pediatric dialysis patients.

Incorporation of POCUS into the training curriculum and dialysis units may be considered, with future efforts focused on developing a standardized program.



KEYWORDS: Point-of-care ultrasound, fluid status, chronic kidney disease, dialysis