THE KOREAN SOCIETY OF NEPHROLOGY
APCN & KSN 2024
June 13(Thu) - 16(Sun), 2024 Coex, Seoul, Korea
Promoting Sustainable Kidney Health: The Asia-Pacific and Beyond

Abstract Submission No.: A-1349

Outcomes of Peritoneal Dialysis Using Stiff Catheters in Children with Acute Kidney Injury: A Retrospective Review

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Objectives : Peritoneal dialysis (PD) is the most common modality of kidney replacement therapy (KRT) for acute kidney injury (AKI) in children from low-resource settings. As soft catheters are expensive and not readily available, stiff catheters are commonly used in these circumstances. However there is limited data on the efficacy and safety of stiff PD catheters.
Methods : This retrospective study enrolled consecutive children aged <18 years who underwent PD for AKI in a tertiary-care hospital from January 2017 to August 2023. As per institutional policy, stiff PD catheters were inserted bedside and electively removed 72 h later. If further dialysis was warranted, new catheters were reinserted.
Results : Over 6-years, 151 children [59% males, 86% ventilated, 72% receiving inotropes with a median (IQR) age of 9 (2,24) months] underwent PD. The PRISM 3 score at ICU admission was 14 (8.5-22), RAI index 8 (10-40). The median eGFR at PD initiation was 20.19 (13.1-41.9) ml/1.73m2/min. The common clinical diagnoses were septic shock 73(49%), post-operative congenital heart disease 26(17.5%), and 17(11%) primary renal diseases including nephrotic syndrome 8(5.4%), hemolytic-uremic-syndrome (HUS) 6(4%), and rapidly progressive glomerulonephritis (RPGN) 3(2%) and inborn error of metabolism 8(5.5%) with the most common indications being fluid overload (38.5%), refractory hyperkalemia (25.5%), persistent-anuria (23.6%). The median PD duration was 53.5 (12,72)h. PD catheter reinsertion was required in 31 (20.5%) children for a median duration of additional 48 (5,24)h with majority of them requiring reinsertion only once (35.5%). Six (7.3 %) children in whom PD was continued beyond 48h developed peritonitis [Candida albicans (4), Enterococcus fecalis (1) and Klebsiella pneumonia (1)]. Other significant complications included intestinal perforation in (0.5%), and catheter-dislodgement in (2%), catheter block in (4%), minimal bleeding at suture site in (5%) and peritubal leak in (9%).
Conclusions : In low resource settings, acute PD using stiff catheter may still be an considerable alternative KRT.