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Experience of pediatric continuous kidney replacement therapy from a tertiary care centre

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Objectives : To identify the clinical profile, CKRT characteristics, and complications associated with CKRT use in children; compare the clinical and CKRT characteristics among survivors and non-survivors, and determine risk factors for circuit clot
Methods : We undertook a retrospective review of consecutive patients <18 years-of-age who underwent CKRT in the pediatric intensive care unit of a tertiary-care hospital from Jan 2016- April 2023. Patients with incomplete case records were excluded. Details pertaining to clinical profile, CKRT characteristics, and associated complications were retrieved from case records and dialysis registers. Clinical and machine-related characteristics were compared between survivors and non-survivors, and risk factors for circuit clot determined. Variables were expressed as mean (standard deviation), median (interquartile range) or frequencies, and compared using Pearson Chi-square/Student t test, as appropriate, using STATA 14.0 software. Univariate logistic regression was performed to identify risk factors for circuit clot.
Results : A total of 82 children (61% males) with median age of 4 (1.4,10) years underwent CKRT; with ~55% weighing <15 kg. At CKRT initiation, 76 (93%) and 72 (88%) patients were on ventilatory and inotropic support, respectively. The most common clinical diagnoses were septic shock (28%), metabolic crisis (20%), and acute liver failure (12%); with the chief indications for CKRT initiation being hyperammonemia/IEM crisis (34%), fluid overload (30%), uremia (7%) or a combination of these (21%). Continuous veno-venous hemodiafiltration (CVVHDF) was the most common (56.1%) modality employed along with heparin (85%) anticoagulation. The delivered dialysis dose was 32.7 ± 7.2 ml/kg/h, with circuit clot seen in 26%. Early initiation of CKRT (12 vs 30 h, p=0.009) was associated with improved survival, while hypotension during CKRT predicted circuit clot (aOR 0.17 [95%CI 0.05-0.6]; p=0.006)
Conclusions : In this study from a low-middle income country, early and timely initiation of CKRT was associated with improved survival. Hypotension from vigorous fluid removal predicted circuit clot