

Importance of Haemodialysis in Children with Acute Kidney Injury

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ABOUT THE STUDY

Acute Kidney Injury (AKI) is defined as a decline in kidney function that occurs within hours and includes both renal damage and impairment. In AKI syndrome the kidney plays an active role in the course of multi-organ dysfunction, rather than a pathological condition of single organ failure. AKI is becoming a more prevalent and dangerous condition showing impact in public health expenses throughout the world. Because there is no effective pharmaceutical therapy that stops the progression of the injury or reverses after it has occurred due to the multiple pathophysiological pathways, renal replacement therapy is the sole current option for renal patients. Biomarkers are used as a predictor of the diseases in early stage which is crucial.

Acute dialysis can save the lives of children who are suffering from extreme organic acidemia and hyper ammoniaemia as a result of acute renal failure, poisoning, or inborn metabolic abnormalities. Children with chronic renal failure or end-stage renal disease can survive on dialysis until a kidney transplant is performed. Acute and chronic dialysis in children follows the same basic concepts, indications, procedures, equipment, and problems as in adults. Dialysis may be done on children of any age, from infancy through adolescence. Haemodialysis is problematic in newborns, babies, and preschool children due to technical issues with vascular access and haemodynamic instability.

Peritoneal dialysis is a low-complication procedure that is direct, efficient, and easy to perform. It does not require highly complicated equipment or staff. Catheters, tubings, dialysers, tiny volume dialysate bags, and other items of the right size are necessary for effective dialysis. Peritoneal dialysis fluid and catheters, for example, are 2-3 times more expensive than haemodialysis equipment. As a result, in India, continuous ambulatory peritoneal dialysis for chronic renal failure/end-stage

renal disease has failed to attract.

To organize a dialysis programme for children with end-stage renal illness, a team of professionals is needed, including specifically qualified paediatric nephrologists, urologists, nurses, dieticians, technicians, and social workers. Each paediatric department that provides emergency treatment to children should have acute peritoneal dialysis accessible.

Haemodialysis is used to treat less than 10% of children under the age of two who have end-stage renal failure in Europe and the United States of America. Peritoneal dialysis is frequently the recommended therapy for little children. Because of its extremely sophisticated procedure, the problems associated with vascular access, and the requirement for a professional and experienced nursing and medical team, haemodialysis is only utilized for a limited number of children and is only used in a few select hospitals. With recent technical advancements, the quality of dialysis therapy available to paediatric patients has significantly increased, and haemodialysis is now regarded a safe and effective treatment for acute or chronic renal impairment in children.

Because a successful renal transplant is still associated to a higher quality of life for children and adolescents with terminal chronic renal impairment, dialysis should be considered a temporary therapeutic option while waiting for a renal transplant.

The shifting spectrum of Acute Renal Failure (ARF) in children has required a prolonged period of Peritoneal Dialysis (PD). Many of the issues associated with the continuous use of temporary catheters can be avoided by using permanent catheters like the Tenckhoff catheter. There was no death as a result of the PD surgery or catheter insertion problems.

Acute intermittent PD with a surgically implanted Tenckhoff catheter was done safely for a long time, with adequate catheter drainage and no intraperitoneal haemorrhage as added benefits.

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