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Hemodialysis in Children

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Chronic dialysis is required for maintaining life for children with end stage renal disease (ESRD) before renal transplantation. Hemodialysis (HD) is relatively difficult in small children due to technical problems associated with vascular access and the risk of hemodynamic instability. HD is not offered to children less than 5 years old unless there is a strong contraindication of peritoneal dialysis (PD). With advancement in technology and development in clinical experience, HD has become a safe and reliable option nowadays. However, it should be delivered in a pediatric dialysis center with a multidisciplinary support team.

The goals of pediatric HD are the same as those in adults undergoing HD: effective and safe clearance of uremic toxins and removal of excess fluid, with the additional need for preservation of blood vessels to allow for a lifetime of renal replacement therapy (RRT). The general principles of HD and a description of HD apparatus are discussed separately. However, we need the knowledge of dialysis methods for the various body sizes, especially infant. Higher dialysis efficiency than in adult is needed in children. Dialysis on every day or continuous dialysis should be considered in young children.

In children less than 30kg and anuria, maintenance HD is difficult for the management with well nutrition and QOL. Hence, in patients with PD failure and no available kidney donor, HD should be performed to control uremia. A recent advancement of HD machines and instruments enabled us to manage young infants with ESRD.