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Complications of continuous renal replacement therapy in critically ill children

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Objectives: The purpose of this study was to analyze the complications of CRRT in children and to study the associated risk factors.

Methods: A prospective, single-centre, observational study was performed in all critically ill children treated using CRRT in order to determine the incidence of complications related to the technique (problems of catheterization, hypotension at the time of connection to the CRRT, haemorrhage, electrolyte disturbances) and their relationship with patient characteristics, clinical severity, need for vasoactive drugs and mechanical ventilation, and the characteristics of the filtration techniques.

Results: Of 174 children treated with CRRT, 13 (7.4%) presented problems of venous catheterization; this complication was significantly more common in children under 12 months of age and in those weighing less than 10 kg. Hypotension on connection to CRRT was detected in 53 patients (30.4%). Hypotension was not associated with any patient or CRRT characteristics. Clinically significant haemorrhage occurred in 18 patients (10.3%); this complication was not related to any of the variables studied. The sodium, chloride, and phosphate levels fell during the first 72 h of CRRT; the changes in electrolyte levels during the course of treatment were not found to be related to any of the variables analyzed, nor were they associated with mortality.

Conclusions: CRRT-related complications are common in children and some are potentially serious. The most common are hypotension at the time of connection and electrolyte disturbances. Strict control and continuous monitoring of the technique are therefore necessary in children on CRRT.