**Systematic Review and Recommendations from the Pediatric Continuous Renal Replacement Therapy (PCRRT) Workgroup for Management of Hyperammonemia in Children**

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**Background:**

Hyperammonemia is the accumulation of ammonia in blood that may result in an acute life-threatening event in pediatric populations. Patients typically present with lethargy, poor feeding, and hypotonia; if not managed efficiently, patients can develop seizures, coma, and eventually die. Management of hyperammonemia is difficult in pediatric populations given the non-specific symptoms, age specific etiologies, and lack of consensus in treatment plan.

**Objective:** This systematic review sought to search the published literature to comprise guidelines for non-renal replacement therapy (RRT) and renal replacement therapy in pediatric patients.

**Methods:** Database search using PubMed/Medline, Embase and Cochrane was performed to include publications about pediatric hyperammonemia and renal replacement. The inclusion/exclusion criteria were used to assess each title, abstract, and full article by two reviewers. An expert panel of international pediatric nephrologists discussed renal replacement therapy of hyperammonemia at a consensus conference to provide recommendations.

**Results:** The initial search returned a total of 477 citations and 25 studies met the inclusion criteria. A total of 132 patients were included in these 25 studies. 23 patients with hyperammonemia were treated with peritoneal dialysis with 65% success rate. 5 patients were treated with intermittent hemodialysis with 100% success rate. 92 patients were treated with CRRT with 60% success rate. 3 patients were treated with ECMO combined with a form of CRRT and had 100% success rate.

**Conclusion:** Expert panel recommendations were provided with regards to non-renal replacement therapies, hemodialysis, peritoneal dialysis, continuous renal replacement therapy, high dose continuous renal replacement therapy, and hybrid therapy. CRRT was recommended as the first line therapy. Indications for RRT was variable; RRT was recommended at ammonia level > 400mmol/L, but also when the patient was hemodynamically unstable, irrespective of ammonia level. More studies are needed to further strengthen the recommendations made in this guideline.