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지속적 신대체요법 치료를 받은 소아 중환자에서 급성 신부전의 위험 인자에 관한 연구

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Risk Factors of Acute Renal Failure in Critically Ill Children Treated With Continuous Renal Replacement Therapy

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Purpose : Acute renal failure is a common problem among pediatric intensive care unit (PICU) patients, and is associated with high risk of mortality and substantial morbidity. Continuous renal replacement therapy (CRRT) has emerged as the preferred dialysis modality for critically ill patients. We reviewed our experience with pediatric CRRT patients admitted to PICU to evaluate risk factors associated with outcome.

Methods : We retrospectively reviewed the medical records of critically ill patients admitted to our 14-bed pediatric ICU requiring CRRT for acute renal failure from November 2004 to October 2009.

Results : A total of 68 patients received CRRT for acute renal failure during the study period. The median age was 6.8 (range, 0.1-24.0) years and 50% of the patients were males. The overall mortality rate was 51.5%. The most common cause leading to CRRT was sepsis or septic shock (n=29, 42.6%). Hemato-oncology disease (n=33;48.5%) and liver disease (n=12;20%) were the most common comorbid underlying conditions and only one patient presented with primary renal disease. The patients with underlying congenital heart disease showed the highest mortality (83.3%). The mean %fluid overload (%FO) at CRRT initiation was 12.7% in survivors vs 19.5% in nonsurvivors and was not significantly associated with mortality (p=0.112). Pediatric Risk of Mortality (PRISM II and PRISM III) score, Sequential Organ Failure Assessment (SOFA) score, number of organ failures, and use of vasopressors or mechanical ventilatory support at CRRT initiation were significantly lower in the survivors than in the nonsurvivors ($p<0.01$). Presence of multiple organ dysfunction syndrome (MODS) showed a significant relationship with mortality ($p<0.01$). And, the mortality increased with increasing number of failed organs (number of failed organs 1-2: 7.1%, 3-4: 48.6%, 5-6: 89.5%) and SOFA score (score 0-4: 25%, 5-9: 26.7%, 10-14: 54.1%, ≥15: 90.9%).

Conclusion : The mortality in critically ill children treated with CRRT was correlated with the number of failed organ and SOFA score, but not with fluid overload and parameters of renal failure. CRRT survival may be associated with the severity of MODS, rather than that of renal failure.

Key Words : 급성 신부전, 지속적 신대체요법, 소아
Acute renal failure, CRRT, Pediatrics