

신생아 지속적 신대체요법시의 예후인자 분석

삼성서울병원 소아청소년과

이상택, 조희연

Fluid Overload and Mortality in Neonates Receiving Continuous Renal Replacement Therapy

Sang Teak Lee, Heeyeon Cho

Department of Pediatrics, Samsung Medical Center, Sungkyunkwan University School of Medicine

Purpose: Neonates with severe perinatal problems often develop fluid overload and hemodynamic instability. Continuous renal replacement therapy (CRRT) has emerged as a favored modality in the management of fluid overload in neonates. The aim of this study is to evaluate fluid overload and mortality in neonate with CRRT.

Methods: A retrospective review was performed in 7 with acute kidney injury or inborn error of metabolism (IEM) who underwent at least 48 hours of CRRT in neonatal intensive care unit (NICU), Samsung Medical Center from January 2014 to December 2014. Data for demographic characteristics, fluid overload from NICU admission to CRRT initiation, CRRT prescriptions, and mean circuit time were collected. The anticoagulation protocol as follows; CRRT in NICU is initially started without anticoagulation, and anticoagulation with heparin is performed if the initial circuit lifespan was less than 12 hours.

Results: Among 7 patients, 3 patients were diagnosed as having IEM and CRRT was performed because of hyperammonemia. The mean age at CRRT initiation was 4.8 days, and the mean days in NICU prior to CRRT was 14.3 days (neonates with IEM: 2.0, others: 24.3). The duration of CRRT was 4.4 days. The mean body weight at NICU admission and at CRRT initiation was 3.1 kg and 3.7kg, respectively. The mean fluid overload was 21.3% (neonates with IEM: 5.3, others: 33.3). The mean serum creatinine at CRRT initiation was 1.7 mg/dl (neonates with IEM: 0.8, others 2.5). The mean urine output at CRRT initiation was 1.4 ml/kg/hour (neonates with IEM 2.2, others 0.7), and urine output at end of CRRT was 2.3 ml/kg/hour (neonates with IEM 3.7, others 1.22). The mean blood flow rate was 10.3 ml/kg/hour, and the mean effluent volume was 1,800 ml/hour/1.73m² (neonates with IEM: 1,898.0, others: 1,726.0). The mean circuit lifespan was 44.5 hours without anticoagulation. The all patients with IEM had fluid overload below 20% and survived. Three patients with fluid overload above 20% were expired.

Conclusion: Early initiation of CRRT can improve the clinical course in neonate with IEM. The fluid overload above 20% at CRRT initiation might be associated with increased mortality, and early initiation of CRRT before the development of severe fluid overload is needed in NICU.

Key Words: 수분 과부하, 지속적 신대체 요법, 급성 신질환

Fluid overload, Continuous renal replacement therapy, Acute kidney injury