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급성신부전이 발생한 중환자에서 지속적 신대체요법의 효과

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Impacts of Early Continuous Renal Replacement Therapy in Critically Ill Patients with Rapidly Progressive Acute Kidney Injury

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Introduction: The optimal time to initiate continuous renal replacement therapy (CRRT) in patients with acute kidney injury (AKI) remains elusive. In addition, it has been unclear as to which parameters should be considered for the decision to start CRRT. Here, we evaluated retrospectively the optimal timing of CRRT stratified by various clinical and laboratory parameters and its association with clinical outcomes in patients with rapidly progressive AKI.

Methods: A retrospective study was performed on the data of 658 AKI patients received CRRT in intensive care unit (ICU) of Seoul National University Hospital from October 2007 to January 2010. Rapidly progressive AKI was defined as >2-fold increase of serum creatinine or >50% reduction of hourly urine output during 24h prior to initiation of CRRT. Data included RIFLE criteria, SOFA score, APACHE II score, and number of organ failures. Timing of CRRT was stratified into 'early' and 'late' by median value of BUN and creatinine levels at the start of CRRT, and also by median urine output during 6h, 12h, and 24h before the initiation of CRRT. The clinical outcomes assessed included duration of RRT, ICU stay, hospital stay and 90 day-mortality.

Results: There were no significant differences in outcomes of patients between early and late group stratified by median value of creatinine at the start of CRRT. However, in terms of BUN, 90 day mortality rate was significantly higher for late group in univariate analysis, but not in multivariate analysis. When the patients were stratified by urine output before CRRT, patients with lower urine output during 6h and 12h before CRRT had significant higher multivariate-adjusted, 90 day-mortality. (6h: OR 1.45, 95% CI 0.99-2.15, P=0.005, 12h: OR 1.69, 95% CI 1.14-2.39, P=0.008). Finally, when CRRT was started at 'Failure' stage of RIFLE criteria compared with 'Injury' stage, the multivariate adjusted OR for death was 1.74 (95% CI 1.15-2.64). Duration of RRT, ICU stay and hospital stay had no significant differences between 'early' and 'late' group.

Conclusion: Our data suggest that early CRRT may have survival benefit in critically ill patients with rapidly progressive AKI, and urine output is the most important parameter for the decision to start CRRT.

Key Words: 급성신부전, 지속적 신대체요법, 중환자
AKI, CRRT, ICU