

급성신손상 환자에서 지속적신대체요법의 조기시행은 사망률의 의미있는 예측인자이다

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Early Initiation of Continuous Renal Replacement Therapy May be a Significant Predictor of Mortality in Acute Kidney Injury

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Background: Approximately 5% of patients admitted to the intensive care units (ICUs) develop severe acute kidney injury (AKI), requiring renal replacement therapy (RRT). AKI is associated with increased mortality rates in ICUs. The effects of the timing of continuous RRT (CRRT) initiation and the characteristics of the infectious process on the clinical outcomes in patients with sepsis seem controversial. The purposes of this study were to compare survival rates between patients in whom CRRT was initiated at early and later stages (early CRRT group and late CRRT group, respectively) and to evaluate the predictors of mortality in both treatment groups.

Methods: We evaluated patients with AKI who were treated in the ICU of the Kosin University Gospel Hospital from January 1, 2010 to December 31, 2011. A total of 200 consecutive patients were included over a 48-month period. Predictors of all-cause death were examined using Kaplan-Meier and Cox proportional hazards analyses in both treatment groups.

Results: The main contributing factors of AKI were cardiac dysfunction (40%) and sepsis (38%). Overall 28-day mortality rates in the early CRRT group were significantly lower than those in the late CRRT group ($p=0.001$). Furthermore, early CRRT treatment was independently associated with a lower mortality rate even after adjustment for age, sex, chronic kidney disease, sepsis, and CRRT dose ($p=0.023$).

Conclusions: This study's findings suggest that early initiation of CRRT may be a significant predictor of mortality.

Key Words: 급성신손상, 지속적 신대체요법, 시기
AKI, CRRT, Timing

Table 1. Characteristics of Patients Treated with CRRT

No. of patients	Early CRRT Tx (n=97)	Late CRRT Tx (n=103)	P value
Male:Female	55:42	60:43	0.886
Age, year (range)	65.1 ± 11.8	66.4 ± 13.4	0.505
CKD (%)	34 (35.1)	35 (34.0)	0.883
Death (%)	34 (35.1)	72 (69.9)	0.001
Cause of death (%)			
MOF	15 (44.1)	42 (64.6)	0.006
Cardiac	16 (47.1)	11 (16.9)	
Cerebral	1 (2.9)	4 (6.2)	
Respiratory	0 (0)	7 (10.8)	
Tumor recurrence	2 (5.9)	1 (1.5)	
Clinical setting			0.001
Medical (%)	87 (90.0)	69 (66.7)	
Surgical (%)	10 (10.0)	34 (33.3)	
Form of admission			0.001
Unscheduled operation (%)	5 (4.4)	20 (19.8)	
Medical (%)	86 (88.9)	70 (67.7)	
Scheduled operation (%)	6 (6.7)	13 (12.5)	
Oliguria (%)	60 (62.1)	62 (60.6)	0.879
Mechanical ventilation (%)	61 (62.9)	74 (72.0)	0.208
Vasoactive drug (%)	63 (65.2)	65 (63.2)	0.878
Bleeding tendency (%)	43 (44.6)	47 (45.7)	1.000
Sepsis (%)	47 (48.3)	66 (64.6)	0.036
Underlying disease (%)			0.255
No	25 (25.8)	40 (38.8)	
DM	47 (48.5)	38 (36.9)	
HBP	19 (19.6)	19 (18.4)	
LC	5 (5.2)	6 (5.8)	
Heart disease	1 (1.0)	0 (0)	
No. of organ failure (range)	1.3 ± 0.8	1.4 ± 0.8	0.347
Renal function at initial dialysis			
Urine output, mL/24 hrs	589 ± 824	687 ± 790	0.418
BUN, mg/dL	56.2 ± 33.8	59.6 ± 32.9	0.494
Serum creatinine, mg/dL	4.5 ± 3.4	3.9 ± 2.3	0.169