Objectives

Severe acute kidney injury (AKI) that results in the need for renal replacement therapy (RRT) affects approximately 5% of the patients admitted to intensive care units (ICU). Acute kidney injury-associated mortality rates in ICUs. The effects of the timing of CRRT initiation and the characteristics of the infectious process on the clinical outcomes in sepsis patients seem to be controversial. The purposes of the this study were to compare survival between patients in early initiation of CRRT and patients in late initiation of CRRT, and to evaluate the predictors of mortality in both treatment groups.

Methods

We evaluated patients with AKI who were treated in ICU of 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 the Kaplan-Meier and Cox proportional hazards analyses in both treatment groups



Figure 1. Kaplan-Meier plots for cumulative 28-day survival.

Early initiation of continuous renal replacement therapy may be a significant predictor of mortality in acute kidney injury Department of Internal Medicine, Kosin University College of Medicine

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Results

	Farly CRRT Tx	Late CRRT Tx	
No. of patients	(n=97)	(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	$5(\Lambda\Lambda)$	20(10.8)	
(%)	5 (4.4)	20 (19.0)	
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(446)	47 (45 7)	1 000
Sensis (%)	47 (48.3)	66 (64 6)	0.036
Underlying disease (%)	-77 (-10.0)		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	1.3 ± 0.8	1.4 ± 0.8	0.347
(range)			
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

Table 1. Characteristics of Patients Treated with CRRT

Table 2. Characteristics of CRRT

Variables	Early CRRT Tx (n=97)	Late CRRT Tx (n=103)	P value		
Days to start CRRT treatment (days)	1.2 ± 0.5	13.9 ± 21.7			
ICU length of stay (days)	15.0 ± 22.1	14.3 ± 14.3			
Duration of treatment (hours)	197.6 ± 481.1	131.5 ± 144.4	0.210		
Mode of CRRT			1.000		
CVVHDF (%)	100 (100)	100 (100)			
CVVH (%)	0 (0)	0 (0)			
Filter life span, hr					
Filter pressure, mmHg	106.4 ± 48.1	113.1 ± 48.2	0.472		
Effluent pressure, mmhg	5.7 ± 68.8	-1.4 ± 47.3	0.529		
TMP, mmHg	79.2 ± 83.4	71.3 ± 42.5	0.536		
Blood flow rate, mL/min	114.4 ± 28.1	128.6 ± 100.0	0.209		
Net ultrafiltration, mL/hr	142.4 ± 128.6	205.7 ± 391.1	0.159		
Replacement flow rate, mL/min	1128.5 ± 289.8	1084.5 ± 290.1	0.326		
Dialysate flow rate, mL/min	1129.7 ± 219.4	1036.9 ± 196.2	0.004		
Effluent flow rate(CRRT dose), mL/kg/hr	37.7 ± 7.4	35.3 ± 7.1	0.032		
Anticoagulation			0.581		
Heparin (%)	55 (57.3)	61 (58.9)			
Nafamostat mesilate (%)	42 (42.7)	42 (41.1)			
Insertion site of two-lumen			0.070		
catheter			0.372		
Rt int jugular vein (%)	94 (97.0)	98 (95.9)			
Lt int jugular vein (%)	2 (2.0)	5 (4.3)			
Femoral vein (%)	1 (1.0)	0 (0)			
Patient's status at ending of CRRT			0.015		
recovery of renal function	30 (30.7)	18 (16.7)			
chronic kidney disease	14 (14.3)	8 (8.3)			
maintenance of hemodialysis	13 (13.2)	8 (8.3)			
death	40 (41.8)	69 (66.7)			
	nclusions				
	Inclusions				
This study suggests that early initiation of CRRT may be a significant predictor of mortality.					
References					

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- 4. N Engl J Med. 2008; **359**:7–20.



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