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Comparison of Conventional and High-Dose Continuous Kidney Replacement Therapy in Critically Ill Patients with Septic Acute Kidney Injury

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Objectives : Although prospective studies have suggested no differences in patient outcomes between high-dose and conventional-dose continuous kidney replacement therapy (CKRT) in critically ill patients undergoing CKRT, real world data are lacking. This study aimed to compare patient outcomes between conventional and high-dose CKRT in critically ill patients with septic acute kidney injury (AKI).
Methods : This multi-center, retrospective, observational cohort study included 1,390 critically ill patients with septic AKI treated with either conventional (<35 mL/kg/h; n =552) or high-dose (≥35 mL/kg/h; n = 838) CKRT. The primary outcome was 28-day mortality. Secondary outcomes included 90-day mortality, CKRT duration, kidney replacement therapy (KRT) dependence at discharge, and intensive care unit (ICU) and hospital stays.
Results : No significant differences were observed for both 28- (52.2% vs. 52.4%, P=0.938) and 90-day (59.8% vs. 61.7%, P=0.475) mortality rates among the conventional and high-dose groups. Compared to the conventional-dose group, the adjusted hazard ratios (95% confidence interval [CI]) for 28- and 90-day mortality were 0.91 (95% CI, 0.78-1.06, P=0.213) and 0.94(95% CI, 0.81-1.08, P=0.383), respectively. The conventional-dose group was associated with both a higher rate of KRT dependence at discharge (17.6% vs. 9.0%, P <0.001) and longer length of ICU stay (median 9.5 vs. 7.0 days, P=0.010), compared to the high-dose group.
Conclusions : While mortality rates did not significantly differ, when compared to conventional-dose CKRT, high-dose CKRT appeared to have lower rates of KRT dependence at discharge and shorter lengths of ICU stays.

figure1.png

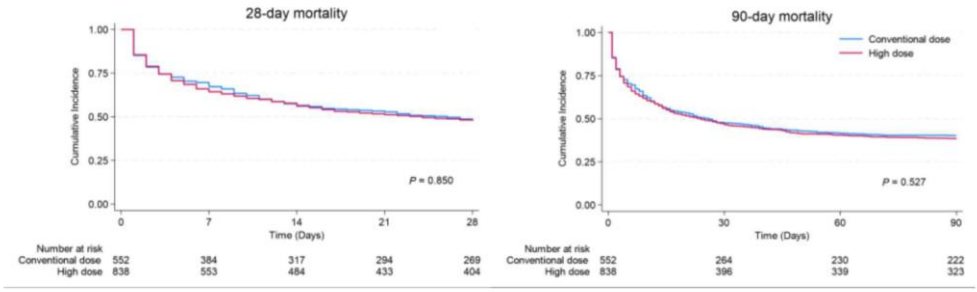

figure1.png

Table 1. HRs for 28- and 90-day mortality according to CKRT dose.

	Model 1		Model 2		Model 3	
	HR (95% CI)	*P*	HR (95% CI)	*P*	HR (95% CI)	*P*
28-day mortality						
Conventional dose (<35 mL/kg/hr)	Reference		Reference		Reference	
High dose (≥35 mL/kg/hr)	1.01 (0.87-1.18)	0.855	1.02 (0.88-1.18)	0.804	0.91 (0.78-1.06)	0.213
90-day mortality						
Conventional dose (<35 mL/kg/hr)	Reference		Reference		Reference	
High dose (≥35 mL/kg/hr)	1.04 (0.91-1.20)	0.539	1.05 (0.92-1.21)	0.479	0.94 (0.81-1.08)	0.383

Model 1: unadjusted model.
Model 2: adjusted for age and sex.
Model 3: model, with additional adjustments for Charlson Comorbidity Index score, body mass index, serum albumin, and platelet count.