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Outcomes of sustained low-efficiency dialysis and continuous renal replacement therapy in ICU patients with acute kidney injury: A single center retrospective cohort study

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Objectives : Continuous renal replacement therapy (CRRT) and sustained low efficiency dialysis (SLED) are usually used for critically ill patients with acute kidney injury when indicated. Majority of studies done throughout the years showed no statistically significant difference between the two modalities in terms of outcomes.
Methods : We conducted a retrospective cohort study of patients who developed acute kidney injury and underwent either SLED or CRRT in the ICU of a tertiary hospital in Makati City, Metro Manila. Patients who are on maintenance hemodialysis, who underwent both sustained low-efficiency dialysis and continuous replacement therapy, and who did not complete or tolerate 1 session of SLED or 24 hours of CRRT were excluded in the study. Key outcomes investigated were all-cause mortality at 30 days and dialysis dependence at 30 days after initiation of treatment.
Results : Eighty-four patients were initiated with either SLED (N=48) or CRRT (N=36). There was a significant difference in terms of all-cause mortality between modalities 20 (42%) for SLED and 33 (92%) for CRRT, p-value = 0.000). Among variables used in the study, higher vasopressor requirement (aOR 2.78, 95%CI: 1.47-5.25, p=0.002) and age (aOR 2.21, 95%CI: 1.13-4.33, p=0.021) at initiation were associated with a higher likelihood of mortality across modalities. Thirteen patients (28%) who underwent SLED were dependent on dialysis at 30 days. Baseline serum creatinine (aOR 3.21 95%CI: 1.17-8.79, p=0.023) and serum creatinine at initiation (aOR 4.11, 95%CI: 1.43-22.56, p=0.014) were identified to be associated with dialysis dependence. Sub-analysis of the CRRT group showed continuous veno-venoous hemodialysis (CVVHD) (aOR 16.57, 95%CI: 3.54-77.49, p<0.001) was associated with higher likelihood of mortality among CRRT modalities.
Conclusions : Increased mortality was seen in patients who underwent CRRT especially CVVHD and was associated with age and number of vasopressors present during initiation of renal replacement therapy

Table 1.png

Variable	CRRT (N=36)		SLED (N=48)		
	Mean		Mean		
Number of treatment sessions	2.06		3.33		
Hours of treatment	49.44 hours		20.21 hours		
Outcomes	**N**	**%**	**N**	**%**	**P-value**
Mortality (all causes)	32	88.89	21	43.75	0.000
Mortality (out of ICU)	3	8.33	7	14.58	>0.05
Discharged	4	11.11	14	29.17	0.046
Dialysis dependence	---	---	13	27.08	---

Table 1.png

CRRT Modality	Unadjusted model		Adjusted model		P-value
	OR	95%CI	OR	95%CI	
CVVHDF	2.70	0.45-16.22	2.45	0.41-14.67	0.325
CVVHD	18.22	3.87-85.72	16.57	3.54-77.49	<0.001