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Association of clinical factors and the outcome of Patients on Continuous Renal Replacement Therapy in Intensive Care Units

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Objectives : Acute kidney injury (AKI) is a common clinical problem and one of causes of high mortality rate in Intensive Care Units patient. Many severe AKI patients has received renal replacement therapy and the patients with hemodynamic instability receive the continuous renal replacement therapy (CRRT). Patients in medical and surgical intensive care units (MICU and SICU) represent two different populations and require different treatment approaches. So, we analyzed the clinical manifestation associated with the ICU outcome on the CRRT of each ICU in our hospital.

Methods : We retrospectively studied on adult patients who received CRRT in ICU on our hospital from March 5, 2016 to December 31, 2016. They were divided two groups; MICU and SICU. The clinical manifestation associated with each ICUs were analyzed. The value was expressed by median (range).

Results : 72 patients who received CRRT were enrolled. 41 patients in MICU and 31 patients in SICU. The median age of patients were 70(18-89) year-old in MICU and 70(18-89) year-old in SICU. Septic shock was the main cause of CRRT in both ICU. [25(61.0%) vs. 12(48.4%), P=0.299]. Also 28-day mortality rate was similar. [28 (68.3%) vs. 19 (61.3%), P=0.47]. But, in-state of ICU mortality rate was higher in MICU than SICU[29 (70.7%) vs. 17 (54.8%), P=0.02]. Simplified Acute Physiology Score 3 (SAPS 3) was higher in MICU than SICU [73 (22-116) vs. 54 (16-101), P=0.01]. The platelet to lymphocyte ratio was lower in the MICU group compared with SICU group, significantly [90.66(2.74-937.65) vs. 164.40(35.94-951.42), P=0.02)]. The serum bicarbonate level was lower in the MICU (mmol/L) [12(2-35) vs. 18 (6-26) mmol/L, P=0.00]. 3 hours urine output amount and inter hospital location (Emergency room to ICU) were lower in the MICU group than SICU group insignificantly. [25(0-85) vs. 38.5(0-700) ml/3hr, P=0.17],[29(70.7) vs. 16(51.6) (%) P=0.17].

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Conclusions : Septic shock was the major cause of AKI requiring CRRT in both ICU. In-state of MICU mortality was higher than that of SICU and it was associated with the patient intra-hospital location before ICU admission (SAPS3 reflected), low acidosis, and low platelet to lymphocyte ratio.

Keywords : AKI,CRRT,ICU,septic shock,SAPS3,mortality