

KSN 2017 Abstract

KSN-17-P031

Timing for Initiation of Sequential Continuous renal replacement therapy in patients with Extracorporeal membrane oxygenation : a propensity score analysis

Jin hyuk PAEK¹, Seohyun PARK², Anna LEE¹, Seokwoo PARK¹, Ho jun CHIN¹, Ki young NA¹, Hajeong LEE³, Jung tak PARK², *Sejoong KIM¹

¹Internal Medicine, Seoul National University Bundang Hospital, Seongnam, Korea, ²Internal Medicine, College of Medicine, Institute of Kidney Disease Research, Yonsei University, Seoul, Korea, ³Internal Medicine, Seoul National University Hospital, Seoul, Korea

Objectives : Extracorporeal membrane oxygenation (ECMO) is a lifesaving therapy used in critically ill patients with severe cardiopulmonary dysfunction. Continuous renal replacement therapy (CRRT) is added to treat fluid overload, acute kidney injury and electrolyte disturbances during ECMO. However, it is not well defined when to initiate CRRT. We performed this study to identify the optimal timing for CRRT on ECMO.

Methods : We conducted a multicenter retrospective cohort study of 281 patients who received CRRT during ECMO between April 2005 and April 2016. We assigned the patients to either an early or late CRRT group depending on the initiation time of CRRT. We considered “early CRRT” to be CRRT instituted within 72 hours of ECMO initiation.

Results : Among 281 patients, 187 patients (66.5%) received early CRRT. After using a propensity score matching method, 92 patients were included in final analysis. No difference in patients’ mortality between early and late CRRT groups was found (67.4 vs. 56.5%, $P = 0.283$, respectively). Time from ECMO initiation to CRRT initiation was 1.1 ± 0.9 days in the early CRRT group and 10.9 ± 10.6 days in the late CRRT group. After adjusting all covariables, the late CRRT group had no significant survival benefit than the early CRRT group (HR, 0.607; 95% CI, 0.360–1.023; $P = 0.061$). In patients with baseline creatinine levels ≤ 1.1 mg/dL, the late CRRT group showed better patient survival than the early CRRT group (HR, 0.195; 95% CI, 0.066–0.578; $P = 0.003$).

Conclusions : This study showed that timing for initiation of CRRT treatment may not affect patients’ survival, and patients with better baseline renal function may delay the initiation of CRRT in ECMO patients. Clinical trials may be needed on timing to initiate subsequent CRRT in ECMO patients.

Keywords : CRRT, ECMO, timing, mortality