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Korean multicenter study of data repository derived from patients with acute kidney injury requiring continuous kidney replacement therapy to overcome transition to acute kidney disease

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Objectives : The number of patients receiving continuous kidney replacement therapy (CKRT) increases over time. Great part of those have transition to acute kidney disease (AKD), which accumulates worse outcomes and high medical cost. Nevertheless, to date, studies on the epidemiology, clinical course, risk factor, and prognosis of AKD have not been fully determined. Herein, we build the multicenter data repository with clinical demographics, biospecimen, and biosignal from patients receiving CKRT to address above issues.
Methods : As the Consortium Linking Health Records, Biospecimen, and Biosignal in Korean Patients with Continuum of Acute Kidney Injury (LINKA), eight Korean institutions participated, and a retrospective cohort of about 1,500 patients receiving CKRT was established. This cohort included demographics, CKRT prescription, laboratory results, and prognosis and follow-up information. Using this cohort, we will identify the frequency of AKD and long-term prognosis, related risk factors, appropriate control ranges, and target values. Using the CKRT biosignal database collected during the retrospective cohort collection, an artificial intelligence (AI) model for predicting prognosis or a patient-specific treatment AI model will be developed. In addition, we started to establish a prospective cohort to collect human specimens along with in-depth epidemiological information and time-series data of multicenter AKD patients. AI model will be verified using the established prospective cohort, and follow-up studies will be planned to discover markers related to AKD using human specimens. Finally, based on research results and literature review, consensus decision-making on AKD prevention and management plans and development of treatment guidelines are being planned.
Results : Currently, data cleansing and merging are in progress after completion of retrospective cohort collection, and construction of a multicenter prospective cohort is actively underway.
Conclusions : Through this study, we may provide scientific evidence on clinical insights and appropriate management targets of AKD, which will be a basis of relevant treatment guideline and finally improve patient outcome.