KSN 2017 Abstract

KSN-17-P201

Utility of Volume Assessment using Bioelectrical Impedance Analysis in Critically Ill Patients Receiving Continuous Renal Replacement Therapy: A prospective observational study

So-hee JEONG, Jung-ho SHIN, Jin ho HWANG, *Su hyun KIM

Internal Medicine, Chung-Ang University Hospital, Korea,South

Objectives : Fluid overload prior to continuous renal replacement therapy (CRRT) is an important prognostic factor. Thus, precise evaluation of fluid status is necessary to treat these patients. In this study, we investigated whether fluid assessment using bioelectrical impedance analysis (BIA) can predict outcomes in critically ill patients requiring CRRT.

Methods : A prospective observational study was performed in patients who were admitted into the intensive care unit and who required CRRT. BIA was conducted before CRRT; then, ECW/TBW (ratio of extracellular water to total body water) was derived to estimate volume status.

Results : A total of 31 patients treated with CRRT were included. There were 18 (58.1%) men, and the median age was 67 (51, 78) years. Fourteen (45.2%) patients died within 28 days after CRRT initiation. Patients were divided into 16 with ECW/TBW ≥0.41 and 15 with ECW/TBW <0.41. Survival rate within 28 days was different between the two groups (P = 0.044). Cox regression analysis revealed a relationship between ECW/TBW ≥0.41 and 28-day mortality, but this was not statistically significant (HR 3.0, 95% CI 0.9-9.8; P = 0.061). Lastly, the area under the curve (AUC) of ECW/TBW for 28-day death was analyzed. The AUC of ECW/TBW was 0.73 (0.54-0.92), and this was significant (P = 0.037).

Conclusions : Fluid status can be assessed using BIA in critically ill patients requiring CRRT, and BIA may predict mortality. Further large trials are needed to confirm the usefulness of BIA in critically ill patients.

Keywords : critical illness, renal replacement therapy, electrical impedance, mortality