■ S-505 ■

The clinical benefit of bioimpedance body composition measurement on correction of hypernatremia

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Background: Hypernatremia is associated with poor outcomes in critically ill patients. Volume assessment is a crucial step in correcting hypernatremia. Recently, bioimpedance spectroscopy (BIS) has been used as a new, noninvasive, and easy tool to measure volume status. **Method:** This study included 51 patients with hypernatremia (mean sodium value of 154 mmol/L; min 150, max 172). Laboratory test using serum and urine was done simultaneously at the first and the third day. BIS was estimated using the Body Composition Monitor (BCM, Fresenius Medical Care, Germany). The BCM showed excessive body fluid volume with a value indicating over-hydration (OH, liter). Considering the reference range of BCM measurement, OH＜-1 was diagnosed as hypovolemia. Total body water (TBW), extracellular water (ECW), intracellular water (ICW), lean tissue index (LTI), lean tissue mass (LTM), body cell mass, adipose tissue mass (ATM), and fat tissue Index (FTI) were measured by BCM. Water deficit was also calculated with classic water deficit equation using serum sodium and plasma osmolality. We analyzed whether the data from BCM could represent water contents in dehydrated patients. **Result:** Applying classic water deficit equation using sodium values, average of 2.59 L of water was dehydrated in each patient. However, the calculated OH from BCM showed that 1.53 L of water was over-hydrated; that was hypervolemia. Although there was no correlation between OH and water deficit equation, TBW, ECF and ICF in BCM were positively correlated with classic water deficit equation (Pearson coefficient 0.451, 0.531 and 0.396, P -value 0.002, 0.000 and 0.006 respectively). The volume changes of the first day and the third day was measured with BCM components and water deficit equation. Between the volume changes there was no significant correlation. **Conclusion:** Mean OH value of BCM was inaccurate in dehydrated patients. The increased resistance of impedance in dehydrated patients might have caused error in the results. Except OH, TBW, ECF and ICF of BCM could be good markers that represent water content in dehydrated patients. Physicians have to be careful when performing BCM in dehydrated patients.

■ S-506 ■

Risk Factors for Mortality in Continuous Renal Replacement Therapy for Acute Kidney Injury

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Background: Continuous renal replacement therapy (CRRT) is the modality preferred in hemodynamically unstable acute kidney injury (AKI) patients. However, the mortality of AKI is still high despite the use of CRRT. We aimed to identify factors associated with an 72-hour mortality of patients with AKI and receiving CRRT. **Methods:** This is a retrospective observational study. 154 patient received CRRT from March 2010 to December 2016 was enrolled. Laboratory parameters, demographic characteristics, and clinical data before starting CRRT were analyzed. **Results:** 137 (89%) died in the ICU while on CRRT. Survivors and non-survivors showed significant differences in total bilirubin (1.61±1.6 vs. 6.06±7.73 mg/dl, $p=0.01$), mean BP (77.7 ±16.69 vs 66.91±13.98 mmHg, $p=0.01$), systolic BP (108.53±22.07 vs. 90.12±19.63 mmHg, $p=0.01$), and amount of fluid overload for 3 days before initiating CRRT (5.02±5.73 vs. 8.21±5.44 L, $p=0.01$). Use of vasopressors (HR 0.32, $p=0.01$), malignancy (HR 0.55, $p=0.02$), and pre-CRRT fluid overload (HR 0.63, $p=0.03$) were independent factors for death within 72 hours after initiating CRRT. **Conclusion:** Malignancies, low systolic blood pressure, and pre-CRRT fluid overload were closely related with 72-hour mortality in CRRT. We need to pay attention to those AKI patients with CRRT.