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**Body fat mass plays a important role in over- or underestimation of bioimpedance spectroscopy-based dry weight for the patients with hemodialysis**

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**Objectives:**

Accurate dry weight (DW) estimation is important for hemodialysis patients. Although bioimpedance spectroscopy (BIS) is commonly used to measure DW, the BIS-based DW frequently differs from the clinical DW.

**Methods:** We analyzed the characteristics of patients whose BIS-based DWs were over- and underestimated. In this retrospective cohort study, we evaluated 1,555 patients undergoing maintenance hemodialysis in Chungnam National University Hospital. The gap (DW) was calculated by comparing the BIS and clinical DWs.

**Results:**

We analyzed the clinical characteristics of patients with positive (n = 835) and negative (n = 720) gaps. Compared with other patients, the DW-positive group was taller, had higher extracellular water (ECW) level and extracellular/intracellular water index (E/I); and had lower weight, body mass index (BMI), lean tissue index (LTI), fat tissue index (FTI), fat mass (FAT), and adipose tissue mass (ATM), as well as lower levels of hemoglobin, total protein, albumin, and phosphorous. The DW-negative group exhibited higher levels of hemoglobin, total protein, albumin, and phosphorous, as well as elevated BMI, FTI, FAT, and ATM; however, it had lower height, ECW, and E/I. Linear regression analysis revealed that FAT significantly predicted DW accuracy.

**Conclusions:**

The clinical DW of patients with malnutrition and a low fat mass tended to be underestimated, while the clinical DW of patients with comparatively large fat reserves tended to be overestimated. These characteristics of dialysis patients will aid in the correction of BIS-associated DW errors