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Consistency of the dry weight of hemodialysis patients predicted using BIA between standing and lying down positions

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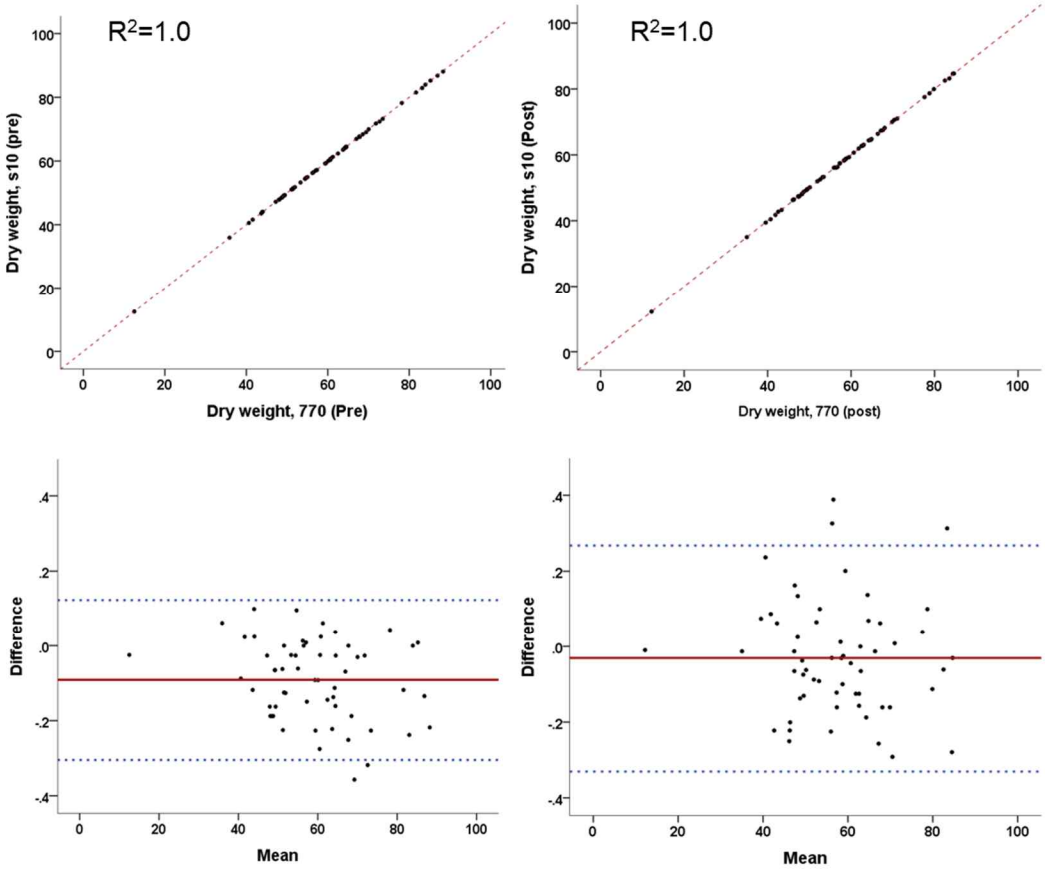
Objectives: Bioimpedance analysis (BIA) is widely used to estimate the dry weight of hemodialysis patients. As hemodialysis is administered with patients lying down, the distribution of their body fluid is stable with lying position, for which reason this position is recommended for BIA. Although the InBody S10 is widely used with hemodialysis patients in the lying position, the clinician must make the measurements in person. In contrast, patients can use the InBody 770 to obtain measurements by themselves in the standing position according to the guidance provided by the machine, which can be more convenient. Therefore, this study compared measurements of hemodialysis patients' dry weight obtained lying down using S10 to those obtained in the standing position using 770.

Methods: Measurements from 56 patients before and after hemodialysis were obtained. Dry weight was calculated considering the ratio of extracellular water to total body water, diabetes, and albumin and compared according to the position (lying vs. standing)

Results: The patients' median age was 64 years, and 51% were men. Their mean dry weight before hemodialysis was found to be 60.0±12.5 kg using the S10 device and 60.1±12.5 kg using the 770 device (paired t-test; t=-6.472, P<0.001). However, the correlation between these measurements was high (R^2=1.0000). Patients' dry weight after hemodialysis was found to be 58.4±12.2 kg using the S10 device and 58.5 ±12.0 kg using the 770 device (paired t-test; t=-1.560, P=0.124). The correlation between these measurements was also very close (R^2=1.0000). The Bland-Altman test yielded similar results.

Conclusions: This study identified that patients' dry weight predicted in the lying position using the InBody S10 device and in the standing position using the InBody 770 device in pre- and post-hemodialysis states was consistent. In conclusion, dry weight can be measured with patients in the standing position more conveniently and autonomously using the InBody 770 device.

The consistency of dry weight between standing and lying down position



Pre-hemodialysis S10 vs. 770

Post-hemodialysis S10 vs. 770