

DIALYSIS. PROTEIN-ENERGY WASTING, INFLAMMATION AND OXIDATIVE STRESS

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COMPARISON OF SINGLE AND MULTIFREQUENCY BIOELECTRICAL IMPEDANCE ANALYSIS WITH DUAL-ENERGY X-RAY ABSORPTIOMETRY FOR THE ASSESSMENT OF BODY FAT AND LEAN MASS IN PATIENTS ON MAINTENANCE HEMODIALYSIS

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Introduction and Aims: The evaluation of body composition in hemodialysis patients is of paramount importance since studies have demonstrated the association of protein energy wasting with an increased risk of morbidity and mortality in this population. It is important to identify a technique for assessing body composition that is simple, non-invasive, cost-effective and could be routinely used in clinical setting. This study aimed to evaluate single and multifrequency bioelectrical impedance analysis (BIA) with dual-energy X-ray absorptiometry (DXA) as a reference method, for the assessment of body fat and lean mass in patients on maintenance hemodialysis.

Methods: This observational study included prevalent maintenance hemodialysis patients. Body fat (BF) and lean mass (LM) assessment were performed by DXA. Single and multifrequency BIA were used to assess BF and free fat mass (FFM) after a hemodialysis session. Bland & Altman concordance method was used to establish the concordance intervals between BIA and DXA.

Results: Forty-one patients were included, mean age 59.8 ± 16.2 years, 51.2% were

man, mean body mass index 25.6 ± 4.6 patients had been on dialysis for 46.7 ± 51.7 months. Mean BF and FFM assessed by DXA were 20.9 kg and 40.4 kg, respectively. The Bland & Altman plot analysis between single and multifrequency BIA and DXA methods is illustrated in Figure 1. Using single BIA, the concordance interval for BF ranged from -4.27 to 9.63 kg, and FFM ranged from -23 to 27.1 kg. Using multifrequency BIA the concordance interval for BF ranged from -2 to 11.6 kg, and FFM ranged from -22.4 to 4.4 kg. These results suggest a low level of concordance between the methods.

Conclusions: Single and multifrequency BIA showed a low level of concordance with DXA, therefore, they are not reliable methods to evaluate body composition in patients on maintenance hemodialysis.

