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Letter to the Editor

Body Composition Assessment of Undernourished Older Subjects by Dual-Energy X-Ray Absorptiometry and Bioelectric Impedance Analysis (1)

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Dear Editor,

We read the recently published paper publication by Karla Helena C. Vilaça et al. (1) with great interest. The Authors compare results from dual energy x-ray absorptiometry (DXA), as a gold standard technique, and conventional bioelectric impedance analysis (BIA) in the assessment of body composition on a sample of undernourished and eutrophic older men. To this purpose they apply the equation proposed by Roubenoff et al. (2) for the elderly.

This is a very interesting matter, indeed. The monitoring of nutritional status in the elderly is crucial for both preventive and therapeutic purposes, and the validation of routine techniques, such as BIA, could be very useful. However, the Authors conclude that the study does not support BIA as an accurate method for the individual assessment of body composition, especially in undernourished subjects, and suggest using caution in applying this approach.

We think that the results presented by Vilaça and colleagues do not provide conclusive evidence to reject BIA as a valid technique. In their study, the differences between the BIA and DXA body composition assessments are not significant, and there is a significant positive correlation between the results from the two methods, both in the eutrophic and undernourished groups. From a statistical point of view, this means that the two techniques provide consistent results.

Nevertheless, we totally agree with the Authors about the need to use caution in the application of the conventional BIA, especially in the elderly and in presence of pathologies. As we discussed in previous papers (3), the predictive efficacy of the conventional BIA approach depends on the adequacy of the regression equations used for the estimation of body composition, i.e., on the similarity between the group being examined and the sample used for the validation of the equations. Besides the already mentioned example (2), many equations have been specifically proposed for the elderly (see for instance those discussed by Heyward and Stolarczyk (4)).

However, the body composition variability linked to normal and pathological ageing is large and not well-defined quantitatively, so that the application of regression equations can lead to substantial estimation errors.

To overcome these limitations, we recommend the use of bioelectric impedance vector analysis (BIVA) (5) as an alternative technique. BIVA is characterized by an empirical approach, based on the direct use of resistance and reactance compared with reference standards, without the need for predictive equations. BIVA has proven to be a suitable technique in various clinical settings (6-8) and in the nutritional assessment of the aged population (9, 10).

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