LETTER TO THE EDITOR

Evaluation of body composition in renal transplant patients: An unsolved problem

Dear Editor,

We have recently reported that the nutritional management of renal transplant patients (RTP) is often underestimated, with deleterious metabolic consequences that may negatively affect the outcome of the graft [1]. Spatola et al. [2] underline that an oriented dietary plan in these patients, particularly prone to fluid overload and to lose the lean mass and increase the fat mass, should conveniently include a correct evaluation of body composition, although a golden standard in RTP does not exist. These latter Authors suggest the use of the Hume's formula, based on routinely collected parameters like height, body weight and sex, which could represent a simple and inexpensive method to estimate body composition compared to the largely inadequate, although widely employed, Body Mass Index. Indeed, a recent cross-sectional study by Wilkinson et al. in both RTP and patients with chronic renal failure in conservative treatment [3] has shown that this formula reliably predicts most of the parameters obtained by x-ray absorptiometry (DEXA) in evaluating body composition (similar Fat Mass and slightly higher Lean Mass), and is also in full agreement with data obtained by bioelectrical impedance analysis (BIA).

Anthropometric formulae, however, are based on mathematical assumptions that allow to convert raw data in biological parameters, like the measure of fat or water content in human body and, obviously, formulae cannot consider some of the common clinical disorders that routinely affect RTP, like salt and water retention, steroid-induced muscle wasting, or obesity which may determine errors in the assumptions by which raw data are converted to final values.

On the other hand, also conventional BIA is limited by the use of models and algorithms that presume a constant relation between body components: the measurement of total body impedance, in fact, allows estimation of total body water provided that total body water is constant. From total body water, then, validated equations allow the calculation of Fat Free Mass and FM [4], which are interpreted according to reference values [5]. BIA equations are accepted for heart, lung, and liver disease as well as for RTP [6]; the BIA-specific equations, however, have not been validated in patients with fluid turnover problems, like dehydration or fluid overload [7].

For these latter problems, an advantage could be represented by the Bioelectric Impedance Vector Analysis (BIVA), which relates body impedance to body hydration without equations, since it is based on the patterns of the resistance-reactance graphs. BIVA has shown to be useful in clinical practice for the combined evaluation of nutritional and hydration status [8]. Probably, the best method to evaluate body composition in RTP before starting a nutritional program could be represented by a comprehensive assessments consisting of both Hume equation (or conventional BIA) and of vectorial BIVA, to be repeated during the nutritional follow-up, to get a better nutritional result.

Conflict of interest

None declared.

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