

Estimation Of The Fat Mass Index By Electrical Bioimpedance Techniques In Relation To BMI In Patients On Hemodialysis

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Introduction

In clinical practice, poor nutritional assessment based on simple and traditionally known criteria as weight or body mass index (BMI) is usually performed. **Bioimpedance analysis** allows a more complex assessment of the patient since it indirectly estimates the fat mass and fat-free mass of the patients (1,2).

Objectives

The purpose of this study is to correlate the information provided by both methods, applied to the same group of patients on hemodialysis in order to evaluate the possible advantages that the BCM method might have over traditional BMI by providing more complex information.

Methods

. Observational study: 54 randomly-chosen stable patients from our center.

. Valuation was done by:

1- BMI = Weight (Kg) / Size (m²). In accordance with the consensus of the SENPE (Spanish Society of Nutrition)(3). BMI <18.5; insufficient weight or risk of malnutrition if BMI=18.5-21.9; normal if BMI=22-26.9; overweight if BMI=27-29.9, and obese if BMI>30

2- BCM system (Body Composition Monitor). Provides information about the patient's body composition as basis for nutritional assessment. BMI = Body Mass Index, LTI = Lean Tissue Index, FTI = Fat Tissue Index, LTI + FTI = BMI (if no overhydration is present). Comparison to reference range: [=] within the range of reference population, [↑] above reference population, [↓] below reference population (4). Statistical analyzes: SPSS 13 ("Statistical Package for Social Sciences").

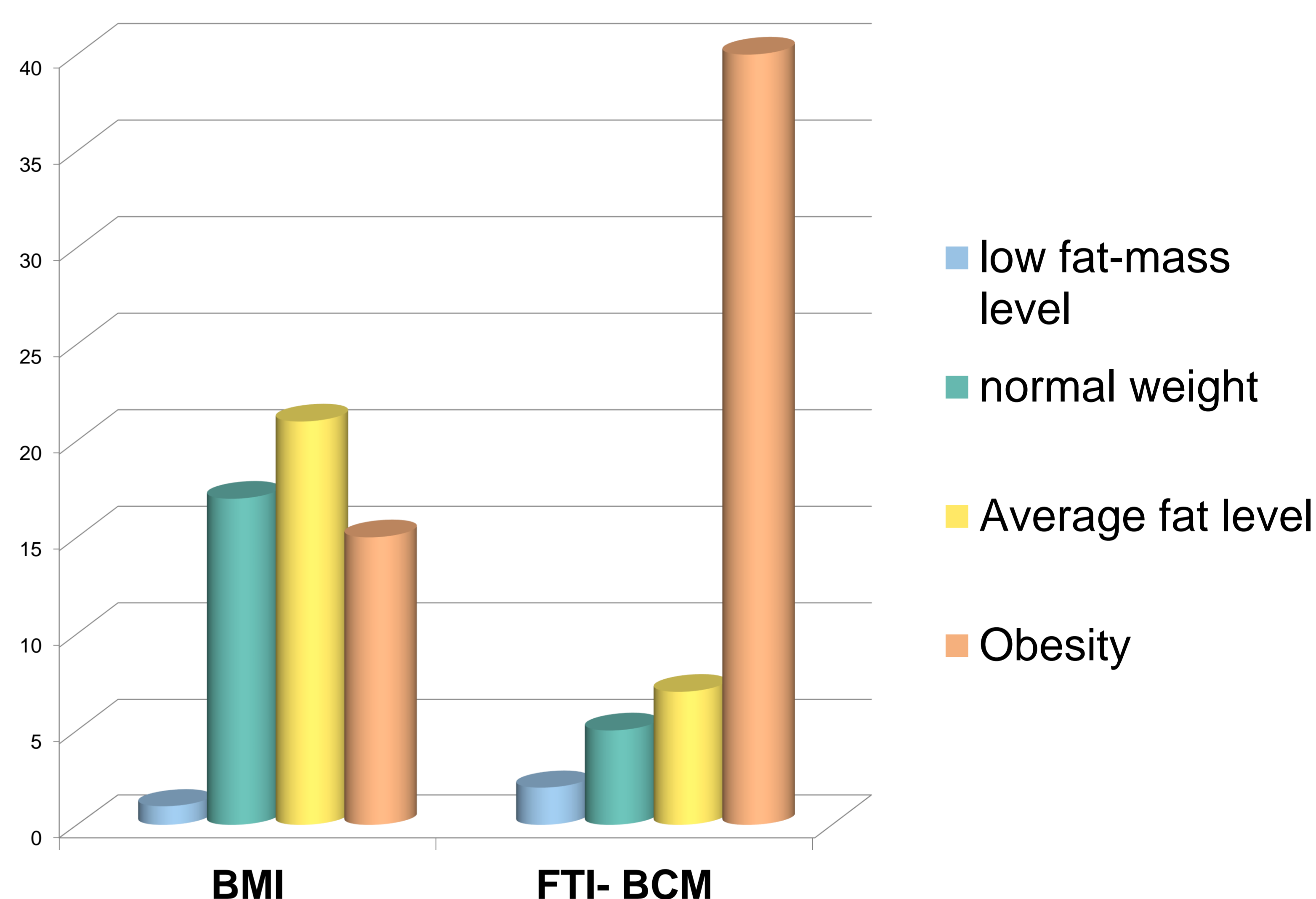
BCM - Body Composition Monitor - Test



A. Smith	5/8
BMI = 21.6 kg/m ²	[=]
LTI = 16.4 kg/m ²	[=]
FTI = 4.2 kg/m ²	[=]
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Comparison to reference range

OUTPUT. Information about the patient's body composition



Prevalence of obesity in the sample according to both assessment methods

Results

Regarding the BMI in the sample, 1 malnourished patient (1.9%), 17 patients in normal weight (31.5%), 21 overweight patients (38.9%) and 15 obese patients were found (27.8%). In relation to the fat mass index indicated by the BCM system, 2 patients showed a low fat-mass level (3,7%); 12 patients did average fat levels (22%) and 40 patients at a level corresponding to obesity (74.1%). Pearson's chi-square statistical analysis found significant differences in assessment ($p = 0.003$). In general, the detection of obesity through BMI was high (overweight 37% and obesity 27.8%) but presented great differences with that obtained by BCM (percentage of obesity greater than 70%).

Conclusion

In conclusion, absolute values showed an underestimation in the detection of obesity and adiposity levels when the traditional BMI was used against BCM.

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