

Bioelectrical impedance and strength measurements in patients with heart failure: comparison with functional class.

Castillo Martínez L, Colín Ramírez E, Orea Tejeda A, Asensio Lafuente E, Bernal Rosales LP, Rebollar González V, Narváez David R, Dorantes García J.

Heart Failure Clinic and Cardiology Department, Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán, Mexico City, Mexico.

OBJECTIVE:

Patients with chronic heart failure (HF) develop important changes in body composition. Nevertheless, the usual methods of body composition assessment can be misleading in patients with HF because tissue hydration is altered. Bioelectrical impedance vector analysis (**BIVA**) works without making any assumption about constant soft tissue hydration.

In this study, patients with HF and systolic dysfunction (HFS) and preserved systolic function (HFPSF) underwent a body composition evaluation by the BIVA method; the comparison was done between New York Heart Association (NYHA) functional classes I-II and III-IV.

METHODS:

We studied 243 patients with HF, 140 (101 in NYHA I-II and 39 in III-IV) with HFS and 103 (67 in NYHA I-II and 36 in II-IV) with HFPSF. Whole-body bioelectrical impedance was measured using **BodyStat QuadScan 4000**, which is tetrapolar and multiple-frequency equipment.

RESULTS:

In both HF categories, *reactance and phase angle were significantly lower, the impedance ratio of 200 kHz to that at 5 kHz was higher*, and had significantly shorter and downsloping impedance vector in the NYHA III-IV group compared with the NYHA I-II group by gender.

CONCLUSION:

Bioelectrical impedance analysis allows an easier evaluation of body composition and this might be particularly useful to stratify the severity of HF.