Abstract: P1112

Prognostic value of bioimpedance vector analysis-assessed cachexia in patients with decompensated heart failure

Authors:
A Klimenko¹, A Rakisheva², S Villevalde³, Z Kobalava¹, ¹RUDN University - Moscow - Russian Federation, ²Scientific Research Institute of Cardiology and Internal Diseases - Almaty - Kazakhstan, ³Federal Almazov Medical Research Centre - Saint Petersburg - Russian Federation,

Topic(s):
Acute Heart Failure – Epidemiology, Prognosis, Outcome

Citation:
Objective: Decompensated heart failure (DHF) is one of the leading causes of hospitalization worldwide. Cachexia is a serious complication in chronic heart failure patients. Bioimpedance vector analysis (BIVA) is a non-invasive, accurate technique, which could be helpful in identification of cachexia and muscle wasting in patients with DHF. The aim of the study was to determine cachexia in DHF patients by BIVA and to evaluate the association with heart failure rehospitalization rate during 6 months.

Methods: in 183 patients admitted with DHF (125 male, 68.9±9.4 years (M±SD), BMI 30.5±6.9 kg/m2, 86.9% arterial hypertension, 55.7% ischemic heart disease, 53% myocardial infarction, 51.4% atrial fibrillation, 36.1% diabetes mellitus, known chronic kidney disease (CKD) 39.9%, ejection fraction (EF) 44.3±14.9%) BIVA was performed. BIVA results were expressed using resistance (R/h) and reactance (Xc/h). Cachexia by BIVA was defined in patients, who dropped outside right lower quadrant of reference curve of 95% R/Xc graph. Mann-Whitney and Spearman tests were performed. P <0.05 was considered statistically significant.

Results: cachexia by BIVA was identified in 31% DHF patients. DHF patients with BIVA detected cachexia compared with DHF patients without cachexia were older (73.7±8.4 vs 67.2±8.6 years, p<0.05) and mostly female (86% vs 62%, p<0.01), had higher resistance R/h (285.5±49.9 vs 211.3±44.3 Om/m, p<0.05) and reactance Xc/h (22.8±4.6 vs 18.2± 6.5 Om/m, p<0.05), lower fat-free mass (57.1±8.3 vs 68.2±12.5 kg, p<0.001), lower musculoskeletal mass (27.3±5.5 vs 36.0±8.4 kg, p<0.001). There were no differences in prevalence of main comorbidities between groups, but there was tendency to higher rate of preexisting CKD (63% vs 53%, p>0.05), chronic obstructive pulmonary disease (29% vs 23%, p>0.05) and higher proportion of patients with reduced EF (43% vs 37%, p>0.05) in DHF with BIVA detected cachexia patients. Patients without cachexia demonstrated higher volume overload compared with cachexia DHF patients (total body water 49.9±9.1 vs 41.8±6.1 kg, p<0.01; extracellular body water 21.9±3.5 vs 16.6±2.5 kg, p<0.01) and had more marked clinically presentation of systemic congestion (bilaterial crackles (82 vs 71%, p<0.05), Rg-hydrothorax (63 vs 36%, p<0.001), orthopnea (86 vs 50%, p<0.01), oedema (100 vs 86%, p<0.05)).

Patients without cachexia compared with BIVA detected cachexia patients demonstrated better outcomes: lower readmission rate due to heart failure decompensation during 6 months (35% vs 57%, p<0.05).

Conclusions: In 31% of patients hospitalized with DHF cachexia by BIVA was detected. Patients with BIVA detected cachexia had worse prognosis compared with patients without cachexia. Evaluating cachexia by BIVA added useful information to standard clinical parameters and could help to determine the patient population with higher risk of rehospitalization rate and apply adequate preventive strategy.