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Sarcopenia in non-cachectic males with heart failure

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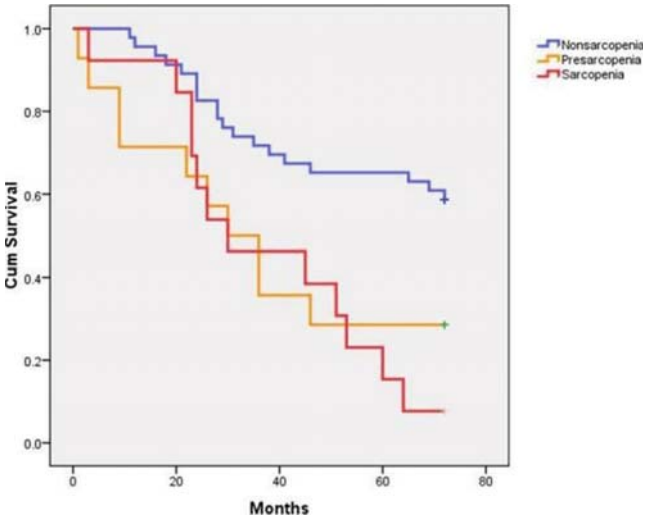
Background: Sarcopenia has been recently identified as a co-morbidity in patients with heart failure. Whether sarcopenia affects prognosis in non-cachectic HF patients is unknown.

Purpose: To assess the determinants of sarcopenia and its prognostic value in elderly males with HF.

Methods: A total of 73 non-diabetic, non-cachectic, male patients with HF and reduced left ventricular ejection fraction ≤40% (age: 68±7 years, left ventricular ejection fraction 29±8%) were enrolled. Sarcopenia was evaluated in accordance with revised definition of European working group on sarcopenia in older people 2 from 2018. Probable sarcopenia (or presarcopenia) was defined as low muscle strength, evaluated by lowest tertile of grip strength. A sarcopenia diagnosis was confirmed by the presence of low muscle quantity in addition to the low muscle strength, expressed as lowest tertile of appendicular skeletal muscle mass (ASM) adjusted by height square. Muscle mass was measured by dual energy X-ray absorptiometry. Patients were divided into 3 groups according to the diagnosis of the presarcopenia/sarcopenia/nonsarcopenia and were compared in respect to survival.

Results: 14 (19%) and 13 (18%) patients were diagnosed with presarcopenia and sarcopenia, respectively. They were older compared to nonsarcopenia patients (72±6 and 73±6 vs. 65±7, $p<0.0001$), with inferior physical performance expressed by 6-minute walking distance (367±73 and 360±95 vs 430±74 m, p=0.003). Patients with sarcopenia presented with lower body mass index (25±3 vs. 29±6 kg/m^2, p=0.014) along with more prominent wasting of bone compartment expressed by reduced total bone mineral content (p=0.002). Creatinine clearance was significantly reduced, while NT-proBNP (log-transformed) was higher in patients with presarcopenia/sarcopenia compared to nonsarcopenia subgroup (p=0.001 and p=0.039, respectively). In multivariate logistic regression only creatinine clearance and 6-minute walking distance were independently related with sarcopenia [OR 0.936 (95% CI 0.891–0.984), p=0.009 and OR 0.992 (95% CI 0.983–1.000), p=0.050, respectively]. A total of 41 (56%) patients died within 6 years of follow-up. Kaplan-Meier survival analysis showed impaired survival in patients with presarcopenia/sarcopenia (p=0.001, Figure 1). In univariate Cox regression analysis determinants of all-cause mortality were: age, NT-proBNP (log-transformed), left ventricular ejection fraction, creatinine clearance and presence of sarcopenia (all $p<0.05$). In multivariate Cox regression analysis, NT-proBNP [HR 3.000 (95% CI 1.589–5.665), p=0.001], and presence of sarcopenia [HR 0.500 (95% CI 0.241–1.038), p=0.063] were independent determinants of all-cause mortality after 6 years of follow-up.

Conclusions: The rate of presarcopenia and sarcopenia was high in non-cachectic, elderly men with HF, and these patients have impaired survival compared to the patients with normal skeletal muscle status.



Survival sarcopenia in heart failure

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