Abstract: P2073

Sarcopenia and cardiac dysfunction in community-living older adults

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Topic(s):
Chronic Heart Failure: Peripheral Circulation, Metabolism, Skeletal Muscle

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Background/Introduction:
Sarcopenia is a generalised skeletal muscle disorder that primarily affects older adults and is common in chronic heart failure (HF). Its association with cardiac dysfunction in community-living older adults remains unclear. As previous studies have found moderate diastolic dysfunction to be predictive of incident HF and reduced survival, we reason that sarcopenia is a component of the preclinical HF syndrome in the elderly.

Purpose:
To delineate the prevalence, characteristics and association of sarcopenia and cardiac dysfunction in community-living ambulatory older adults without known HF.

Methods:
We recruited 306 community-living individuals aged ≥60 years into the UFO study. A previously validated 5-item questionnaire, SARC-F, was administered at recruitment. A score of ≥4 indicated the presence of sarcopenia, whereas <4 denoted non-sarcopenia. Echocardiography and N-terminal prohormone of B-type natriuretic peptide (NT-proBNP) were used to assess for cardiac dysfunction.

Results:
A total of 102 (33.3%) individuals were sarcopenic. Compared with non-sarcopenic individuals, sarcopenic counterparts were older (79.69±7.56 vs 72.25±6.59, P<0.01) and more likely to be female (85.3% vs 60.8%, P<0.01). Hypertension (76.5% vs 60.3%, P<0.01), diabetes mellitus (DM) (35.3% vs 24.5%, P<0.05) and ischaemic heart disease (IHD) (10.8% vs 4.4%, P<0.05) were more prevalent in the sarcopenia group.

Overall, the prevalence rates of diastolic and systolic dysfunction (left ventricular ejection fraction (LVEF) =50% by Simpson’s method) were 67% and 4.2%, respectively. Diastolic dysfunction was more common in sarcopenic than non-sarcopenic individuals (82.4% vs 59.3%, P<0.01). The prevalence of diastolic dysfunction progressively rose from 49.4% to 100% with increasing SARC-F scores. LVEF did not significantly differ between sarcopenic and non-sarcopenic individuals.

Amongst echocardiographic parameters of diastolic function, the ratio of peak mitral inflow velocity-to-early diastolic mitral annular velocity (E:E’) and left atrial volume index (LAVI) were greater in the sarcopenia than non-sarcopenia group (septal E:E’, 17.27±5.9 vs 13.24±4.66, P<0.01; lateral E:E’, 13.61±5.52 vs 10.36±4.0, P<0.01; LAVI, 31.4±10.08 vs 25.92±10.65 ml/m2, P<0.05), whereas E’ was lower in the sarcopenia group (septal E’, 4.79±1.44 vs 5.51±1.45 cm/s, P<0.01; lateral E’, 6.25±2.05 vs 7.14±2.09 cm/s, P<0.01).

Serum NT-proBNP levels (median, IQR) were significantly higher in the sarcopenia than non-sarcopenia group

Conclusion(s):
Diastolic dysfunction was highly prevalent in community-living older adults. Preclinical cardiac dysfunction was associated with an increased risk for sarcopenia.
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Serum NT-proBNP levels (median, IQR) were significantly higher in the sarcopenia than non-sarcopenia group (177.13 (101.34–399.42) vs 81.95 (43.30–166.62) pg/ml, P<0.01). By regression analysis, NT-proBNP >300 pg/ml was associated with an increased risk for sarcopenia (OR 2.40, 95% CI 1.05–4.19, P<0.01) after adjusting for hypertension, DM and IHD.

Conclusion(s):
Diastolic dysfunction was highly prevalent in community-living older adults. Preclinical cardiac dysfunction was associated with an increased risk for sarcopenia.