Abstract: P622

Arterial stiffness index and exercise tolerance in patients undergoing cardiac rehabilitation: comparison between patients with preserved and reduced ejection fraction

Authors:
K Fujiwara¹, K Shimada¹, M Kunimoto¹, M Yokoyama¹, M Tomomi¹, T Aikawa¹, S Ouchi¹, M Shimizu¹, K Fukao¹, T Miyazaki¹, A Honzawa², M Yamada², A Amano³, H Daida¹, ¹Juntendo University School of Medicine, Department of Cardiovascular Medicine, Juntendo University Graduate School of Medicine - Tokyo - Japan, ²Juntendo University School of Medicine, Cardiovascular Rehabilitation and Fitness - Tokyo - Japan, ³Juntendo University School of Medicine, Department of Cardiovascular Surgery, Juntendo University Graduate School of Medicine - Tokyo - Japan,

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BACKGROUND: Arterial stiffness contributes to the development of cardiovascular disease (CVD). However, the relationship between arterial stiffness and exercise tolerance in patients with CVD with preserved ejection fraction (pEF) and in those with reduced EF (rEF) is unclear.

PURPOSE: To investigate the relationship between arterial stiffness indices and exercise tolerance in patients with CVD with pEF and in those with rEF.

METHODS: We enrolled 163 patients (137 males; mean age, 63 years) who participated in cardiac rehabilitation and underwent cardiopulmonary exercise testing. After excluding 20 patients with mid-range EF, the patients were divided into pEF (n = 99) and rEF (n = 44) groups. Arterial stiffness was assessed using arterial pressure volume index (API) and arterial velocity pulse index (AVI) at rest using a novel non-invasive test, PASESA®.

RESULTS: The pEF group had a significantly higher mean age, a higher prevalence of ischemic disease and a lower prevalence of history of symptomatic heart failure. Compared with the rEF group, a lower AVI level and a higher API level were found in the pEF group. There were no significant differences in anthropometric parameters and peak oxygen uptake (peak VO₂) between the two groups. However, peak VO₂ was significantly and negatively correlated with AVI and API, respectively, in the pEF group (All P values < 0.05) but not in the rEF group. Multivariate linear regression analyses revealed that AVI was independently associated with peak VO₂ (β = -0.303; P < 0.05) in the pEF group. CONCLUSION: AVI may be a useful factor in assessing exercise tolerance, particularly in patients with CVD with pEF.
Correlation with arterial stiffness and peak oxygen uptake

![Graphs showing correlation between AVI and peak VO2, API and peak VO2](image)

- AVI: $r = -0.42$, $P = <0.0001$
- API: $r = -0.29$, $P = <0.01$