Abstract: **P1718**

**Cardiopulmonary exercise testing for assessing frailty status in stable elderly patients with heart failure**

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Introduction: Frailty is a syndrome associated with aging that produces subclinical dysfunction across multiple organ systems and leads to increased risk of mortality. The Kihon Checklist (KCL) was developed by the Japanese Ministry of Health, Labor and Welfare to identify older persons in need of care; it is a reliable tool for predicting general frailty in older adults. There is little information about the relationship between frailty status and exercise capacity.

Hypothesis: Cardiopulmonary exercise testing (CPX) parameters are associated with frailty in stable elderly patients with heart failure (HF).

Methods: Ninety-two stable elderly patients with HF were evaluated by using CPX and the total KCL (t-KCL). A t-KCL score of 0–3 was classified as robust, 4–7 as pre-frail, and ≥8 as frail. Diagnostic performance (DP) -plot analysis was used to assess the utility of CPX parameters to distinguish between the presence and absence of frailty.

Results: Mean age, left ventricular ejection fraction, plasma brain natriuretic peptide, peak work rate (WR), peak VO2, and t-KCL score were 81.7 years, 57.9%, 184 pg/mL, 48.8 W, 13.2 mL/kg/min, and 13.1, respectively. t-KCL score was significantly correlated with peak VO2 (r = -0.53, p < 0.001) and peak WR (r = -0.63, p < 0.001). In the patients with frailty (n = 63), peak WR was significantly lower than that in patients without frailty (n = 29; 40.8 and 71.0 W, respectively, p < 0.001). Multivariate analysis revealed that peak WR was the only significant independent predictor of frailty (β = -0.111, p < 0.001). In the DP-plot analysis, a cut-off value for peak WR of 51.9 W was the best predictor of frailty (accuracy: 0.706).

Conclusions: Frailty status was significantly associated with peak WR in stable elderly patients with HF. CPX may be useful for assessing frailty status in stable elderly patients with HF.