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Small heart with low cardiac output for orthostatic intolerance in patients with chronic fatigue syndrome.

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Abstract

BACKGROUND: The etiology of chronic fatigue syndrome (CFS) is unknown. Orthostatic intolerance (OI) is common in CFS patients. Recently, small heart with low cardiac output has been postulated to be related to the genesis of both CFS and OI.

HYPOTHESIS: Small heart is associated with OI in patients with CFS.

METHODS: Study CFS patients were divided into groups of 26 (57%) CFSOI(+) and 20 (43%) CFSOI(-) according to the presence or absence of OI. In addition, 11 OI patients and 27 age- and sex-matched control subjects were studied. Left ventricular (LV) dimensions and function were determined echocardiographically.

RESULTS: The mean values of cardiothoracic ratio, systemic systolic and diastolic pressures, LV end-diastolic dimension, LV end-systolic dimension, stroke volume index, cardiac index, and LV mass index were all significantly smaller in CFSOI(+) patients than in CFSOI(-) patients and healthy controls, and also in OI patients than in controls. A smaller LV end-diastolic dimension (<40 mm) was significantly ($P<0.05$) more prevalently noted in CFSOI(+) (54%) and OI (45%) than in CFSOI(-) (5%) and controls (4%). A lower cardiac index (<2 L/min/mm²) was more prevalent in CFSOI(+) (65%) than in CFSOI(-) (5%, $P<0.01$), OI (27%), and controls (11%, $P<0.01$).

CONCLUSIONS: A small size of LV with low cardiac output was noted in OI, and its degree was more pronounced in CFSOI(+). A small heart appears to be related to the genesis of OI and CFS via both cerebral and systemic hypoperfusion. CFSOI(+) seems to constitute a well-defined and predominant subgroup of CFS. © 2011 Wiley Periodicals, Inc. The authors have no funding, financial relationships, or conflicts of interest to disclose.

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