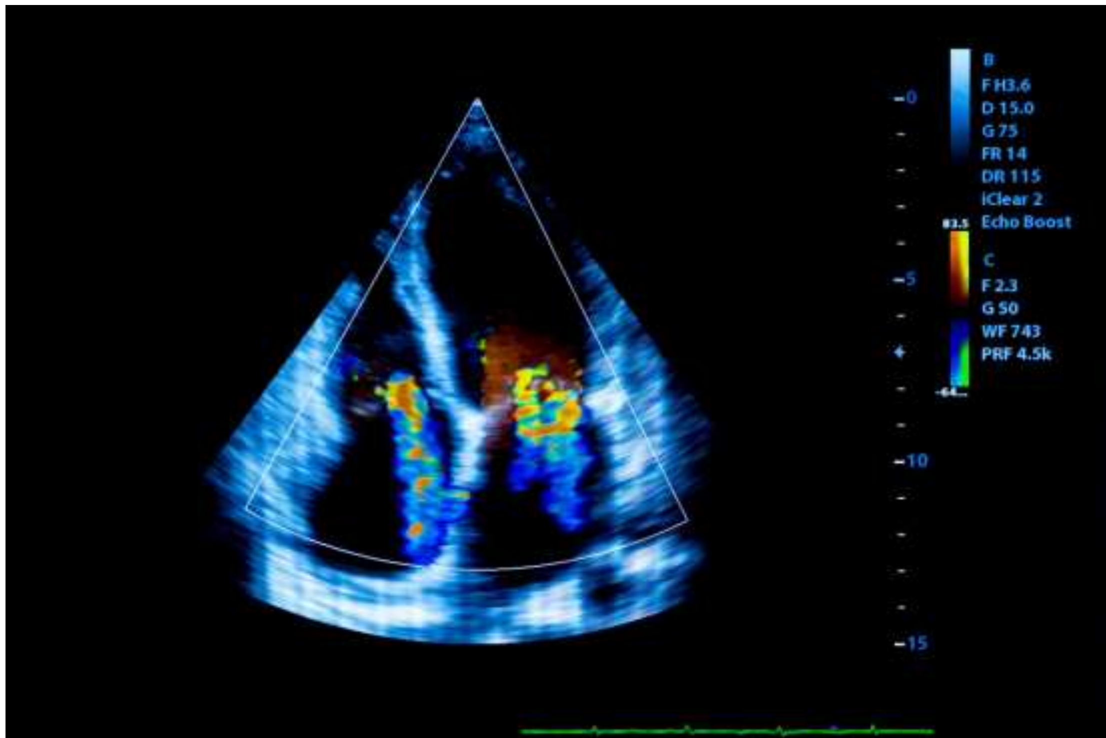
A strategy for predicting abnormal diastolic response to exercise in patients with dyspnea unable to perform an exercise test



The difficulties of diagnosing heart failure with preserved ejection fraction (HFpEF) are well known. In patients presenting with dyspnea, its presence can be confirmed by exercise testing. However, many patients are unable to perform adequate exercise testing, hence the need for a simpler clinical diagnostic test.

Kosmala et al. describe such a diagnostic strategy that can predict an abnormal diastolic response to exercise using a combination of clinical,

biochemical, and resting echocardiographic markers. The main biochemical marker included in their strategy was galectin-3, a marker of cardiac fibrosis. The main resting echocardiographic marker was E/e’ – the ratio of the peak early diastolic mitral inflow velocity (E) to the peak early diastolic mitral annular velocity (e’).
The study was carried out in 171 symptomatic patients with suspected HFpEF who had exertional dyspnea and mild diastolic dysfunction, but a resting E/e’ <14. They underwent a complete echocardiogram and blood assays for biomarkers, and were followed for more than two years for endpoints of cardiac hospitalization and death.
Statistical analyses showed that exercise testing could be avoided in patients with a resting E/e’ > 11.3 and galectin-3 < 1.17 ng/mL, as these parameters were able to predict major cardiovascular events just as well as an abnormal diastolic response to exercise by stress echocardiography (34 versus 36 events, p = 0.95). The investigators suggest that implementation of this two-step approach (echocardiographic evaluation of resting E/e’ and assessment of galectin-3) could improve the diagnosis and prognostic assessment of patients with HFpEF, especially those unable to perform an exercise stress test.

Original article: JACC Cardiovasc Imaging 2019;12(5):771-780. DOI:10.1016/j.jcmg.2017.10.008

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