

## How Common Is Diastolic Dysfunction Among the Elderly with Dyspnea?

*Pederson F, Raymond I, Mehlsen J, et al. Prevalence of diastolic dysfunction as a possible cause of dyspnea in the elderly. Am J Med 2005;118:25–31.*

### Study Overview

**Objective.** To determine the prevalence of diastolic dysfunction as a cause of dyspnea among community-dwelling elderly patients with chronic dyspnea.

**Design.** Prospective cohort study.

**Setting and participants.** Total of 152 Danish patients with regular primary care who responded to a questionnaire and reported dyspnea. All patients underwent echocardiography (ECHO), electrocardiography, and lung function testing. Those patients with normal lung function tests ( $n = 60$ ) underwent cardiac magnetic resonance imaging, chest radiography, bicycle exercise tests, and blood tests. Left ventricular diastolic function was assessed using echocardiographic/Doppler techniques.

**Main outcome measures.** Etiology of dyspnea and ECHO findings of diastolic dysfunction heart failure.

**Main results.** Of the 662 patients initially identified, 555 responded. Only 210 patients had dyspnea, and 152 respondents met the study criteria. 23 patients failed to report dyspnea on a follow-up interview. Of 129 remaining patients, 69 had evidence of pulmonary disease that may explain their dyspnea, and 12 had other obvious cardiac causes (eg, systolic dysfunction, atrial fibrillation, and significant valvular disease). Of the remaining 48 patients, none were found to have impaired relaxation by standard criteria, 32 had other potential causes of dyspnea, and the overall prevalence of diastolic dysfunction was between 1% and 11%, depending on the criteria used.

**Conclusion.** Elderly patients in Denmark with chronic dyspnea had a low prevalence of diastolic dysfunction. In patients with chronic dyspnea, other more prevalent causes should be investigated.

### Commentary

“Diastolic dysfunction” has emerged as a diagnosis to describe patients with clinical heart failure who have no evidence of systolic dysfunction on ECHO. Using this definition, studies

suggest that diastolic dysfunction accounts for over 50% of all cases of heart failure and is likely due to a combination of longstanding hypertension and ischemic heart disease.

The prevalence of diastolic dysfunction in the community-dwelling elderly without clinical symptoms of heart failure is not well understood. In fact, some have suggested that undiagnosed heart failure among the elderly who have chronic dyspnea may be high; however, until now there have been no studies to quantify this prevalence. A better understanding of the causes of dyspnea can potentially reduce morbidity and mortality in this population.

Despite the clinical relevance of the study by Pederson and colleagues, there are some important limitations. The first critical limitation is recruitment. The authors offer few details on how the patients were recruited; it is not known if the initial 662 patients identified are representative of the larger population or applicable to our own patient populations. Second, they identified 37% of patients as having dyspnea. However, dyspnea is usually a transient symptom, and when patients with diastolic dysfunction have well-controlled hypertension and fluid levels, they may not have symptoms of dyspnea. Therefore, knowing if patients ever had dyspnea or symptoms of heart failure or hypertension would have been useful. Further, evaluating patients who did not have a primary care physician (and therefore would not have been identified by this recruitment strategy) would give a better picture of the prevalence of diastolic dysfunction in the community.

Beyond recruiting, other critical issues remain. The authors essentially assumed that those with lung disease (easy to diagnose) were likely not to have diastolic dysfunction (difficult to diagnose). Patients often have pulmonary and cardiac diseases concomitantly, and longstanding cardiac disease can potentially impact pulmonary function. As a result, this assumption may not be fair. The authors did obtain ECHOs on all patients; however, ECHOs can easily miss diastolic dysfunction, as their findings are heavily dependent on the patients' blood pressure and fluid status. If these are well-managed, a false-negative ECHO may result.

### Applications for Clinical Practice

Pedersen and colleagues have made an important contribu-

tion to our understanding of the prevalence of diastolic dysfunction. While their prevalence rates are likely to be an underestimation, their data do suggest that undiagnosed diastolic heart failure may not be as common as we fear. However, until the prevalence is better understood, diastolic dysfunction should still be considered an important cause of

diastolic dysfunction in community-dwelling elders. Studies that better define the patients at high risk for this condition and optimal management strategies for patients with chronic dyspnea are needed.

*—Review by Ashish K. Jha, MD, MPH*

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