

Symptom burden of sleep-disordered breathing in systolic heart failure patients

To the Editors:

We read with interest the paper by HASTINGS *et al.* [1] who studied the symptom burden resulting from sleep-disordered breathing in patients with congestive heart failure, which was mainly due to left ventricular systolic dysfunction. The possible presence of diastolic abnormalities was not reported to have been evaluated.

In clinical practice, approximately half of patients with heart failure have preserved left ventricular systolic function, with high morbidity and mortality rates, and major socio-economic burden derived from their management [2]. The majority of patients who present with heart failure and normal systolic function do not have a defined myocardial disease, but it has been demonstrated that they have abnormalities in active relaxation and passive stiffness [3], *i.e.* they have alterations in the mechanical function during diastole that lead to the development of diastolic heart failure. Diastolic heart failure has differential clinical and pathophysiological features [4, 5]. A close association between sleep-disordered breathing and diastolic heart failure has been previously reported [5, 6]. Only heart failure patients with systolic heart failure were studied by HASTINGS *et al.* [1]. Therefore, the findings from this study cannot be generalised to the entire population of heart failure patients, particularly with regard to heart failure patients with preserved systolic function, and this should be noted in the title or discussed by the authors throughout the manuscript.

M.A. Arias*, A. Alonso-Fernández[#] and F. García-Río[†]

*Cardiology Dept, Complejo Hospitalario de Jaén, Jaén, [#]Neumology Dept, Hospital Universitario Son Dureta, Palma de Mallorca, and [†]Neumology Dept, Hospital Universitario La Paz, Madrid, Spain.

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From the authors:

We greatly appreciate the comments made by M.A. Arias and co-workers on our paper [1]. We concluded that patients with mild-to-moderate congestive heart failure (CHF) with sleep-disordered breathing (SDB) had objective evidence of daytime sleepiness, with a significant reduction in daytime activity and longer periods spent in bed with poorer sleep quality compared to matched controls with heart failure but without SDB.

In our study, diastolic function was not formally assessed, but measurements included pulsed-wave Doppler of the mitral inflow and assessment of isovolumic relaxation time. However, the European Society of Cardiology recommends that assessment of diastolic function should also include tissue Doppler of the mitral valve annulus, since pulsed-wave Doppler of the mitral inflow alone may be insufficient and problematic [2]. Thus, accurate data on diastolic function in our patient population are not available.

The population of patients participating in our study were all male and had CHF secondary to left ventricular (LV) systolic dysfunction. Thus, we accept the point made by M.A. Arias and co-workers that our findings may not be extrapolated to patients with CHF secondary to preserved LV function (diastolic heart failure).

We acknowledge that patients with congestive heart failure with preserved left ventricular systolic function form 50% of patients with congestive heart failure, and they are typically elderly, female and have long-standing hypertension [3]. However, the majority of studies of sleep-disordered breathing within the congestive heart failure population primarily involve patients with left ventricular systolic dysfunction. Like ours, the title of most of these studies may be misleading and their conclusions may erroneously be extrapolated to the generalised heart failure population [4]. To date, there has only been one study of the prevalence of sleep-disordered breathing within congestive heart failure patients with preserved left ventricular systolic function [5], and further work within this patient population is required.

A. Vazir*, M.J. Morrell[#] and A.K. Simonds[#]

*Dept of Cardiac Medicine and [#]Academic and Clinical Unit of Sleep and Breathing, Royal Brompton Hospital, Imperial College, London, UK.