Reviewer's report

Title: Characteristics Of Acute Congestive Heart Failure with Preserved Ejection Fraction and Less Elevated Brain Natriuretic Peptide

Version: 2 Date: 5 September 2008

Reviewer: Stephane Arques

Reviewer's report:

The authors addressed the characteristics of consecutive patients with acute heart failure and normal ejection fraction according to levels of B-type natriuretic peptide (BNP) at presentation. The main result is that low BNP levels are independently predicted by history of open chest surgery.

While heart failure with normal ejection fraction (HFnlEF) accounts for half of patients with the clinical syndrome of heart failure, only a very few data are available on BNP levels at presentation in such patients. Currently, what do we know? BNP levels are related to the severity of symptoms of heart failure (NYHA class, refer to Maisel AS et al. New Engl J Med 2002; 347: 161-) and the acute or chronic state of the disease, which subsequently must be taken into consideration before interpreting data. Indeed, some clinical studies have established that BNP levels are low (<100 pg/ml) and therefore inconclusive for the diagnosis, in most stable patients with chronic HFnlEF and isolated exertional dyspnea (Kitzman DW et al. JAMA 2002; 288: 2144--; Mottram PM et al. Am J Cardiol 2003 ; 92: 1434--). Conversely, BNP is a useful diagnostic marker of HFnlEF in patients presenting with acute dyspnea regardless of NYHA class (Maisel AS et al. J Am Coll Cardiol 2003; 41: 2010--; Dokainish H et al. Am J Cardiol 2004; 93: 1130--; Arques S et al. Echocardiography 2005; 22: 657--; Arques S et al. Echocardiography 2007 ; 24 : 499--; Arques S et al. Int J Cardiol 2008 ; 128 : 123--). Particularly, all these studies are consistent with the fact that low BNP concentration (standard cutoff of <100 pg/ml) provides high predictive negative value (>90%) for the diagnosis of HFnlEF in the setting of acute dyspnea.

Major compulsory revisions:

1) In light of the current literature, what does the present manuscript offer as new information? Such results obtained from patients with acute HFnlEF are contrasting with recent literature, because a large proportion of patients (32%) had BNP levels <100 pg/ml. One can argue that the number of patients with mild to moderate symptoms (NYHA class II) was high (80%) and that patients with radiographic evidence of pulmonary edema was low; this may, at least in part, explain the unexpected high prevalence of low BNP levels in this patient population. As a second explanation, the percentage of patients with history of open chest surgery (and mitral prosthesis) is high compared to previous studies (see references above). The authors speculate about pericardial disease as the
main determinant of signs and and symptoms of heart failure in this subset of patients.

Therefore, I am most concerned by the fact that the authors did not discuss their results (which refer to as a specific pattern of HFnlEF) with the more common pattern of HFnlEF (i.e., diastolic heart failure), in which history of mitral valve and pericardial disease are exclusion criteria (ESC recommendations. Paulus WJ et al. Eur Heart J 2007; 28: 2539-). Accordingly, the authors should more clearly emphasize open chest surgery (and mitral prosthesis) as an underecognized, specific pattern of HFnlEF characterized by low BNP levels, as compared with previous studies (see references by Maisel, Dokainish and Arques cited above); this would make the manuscript much more attractive and scientifically relevant.

2) BNP levels are influenced by body mass index; such an important variable should be integrated in Table 1 and statistical models.

Minor essential revisions:

1) How many patients fulfilled diagnostic criteria for diastolic heart failure proposed by the ESC recommendations (Paulus WJ et al. Eur Heart J 2007; 28: 2539-)?

2) The term “heart failure with preserved ejection fraction” is not accurate; one would prefer either “heart failure with normal ejection fraction” or “heart failure with preserved systolic function”. The term “B-type natriuretic peptide” is more relevant than "brain natriuretic peptide".

3) Maisel (author) is misspelled in the text and in reference 4.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests