Reviewer's report

Title: Body Mass Index in Chronic Heart Failure: Association with biomarkers of neurohormonal activation, inflammation and endothelial dysfunction

Version: 1 Date: 29 July 2013

Reviewer: Serge Masson

Reviewer's report:

Review for BMC Cardiovascular Disorders: Body Mass Index in Chronic Heart Failure: Association with biomarkers of neurohormonal activation, inflammation and endothelial dysfunction. Authored by Heidi M Christensen, Morten Schou, Jens P Goetze, Jens Faber, Jan Frystyk, Allan Flyvbjerg and Caroline Kistorp.

The authors examined the association between body mass index (BMI) and several circulating biomarkers used in cardiovascular research in 171 patients with chronic, symptomatic HF. They found an independent and inverse relation for adiponectin and N-terminal probrain natriuretic peptide (NT-proBNP), but not for stable fragments of atrial natriuretic or adrenomedullin propeptides (MR-proANP), markers of inflammation (hsCRP), immunity (alpha-defensins) or water homeostasis (copeptin).

This is a retrospective, observational, monocentric clinical study of well-characterized patients entered in a management program of systolic HF. The methods and results are properly presented and the conclusions supported by data and well-balanced. The limited number of patients enrolled in the present study should be acknowledged as a limitation in an ad-hoc section (see major comment #1).

I have several major comments.

Major Compulsory Revisions:

1. The authors should briefly discuss about the sample size of their study and provide their statistical power (minimal strength of detectable associations between BMI and biomarkers).

2. The authors may want to quote and comment the findings of a previous study that evaluated the association between MR-proANP and BMI in a large population of patients with chronic HF (Masson et al., Eur J Clin Invest 2011;41:1330).

3. In the Methods section, briefly describe the reagents and analytical procedures used to assay the circulating biomarkers. What is the specificity of the alpha-defensins assay?

Discretionary Revisions:

1. What is the rationale for investigating the association between alpha-defensins
and BMI in CHF? Are there previous observations in different settings?

2. Since the paper focuses on the hormonal interplay between adipose tissue, adiponectin and natriuretic peptides, it would be interesting to show the relations of circulating biomarkers with anthropometric (waist circumference) or biological (visceral fat mass, body fat content) estimated of adipose tissue content.

Minor Essential Revisions:

1. Data shown in Figure 1 are duplicates of those presented at the bottom of Table 1. Please choose either one.

2. Use consistent concentration unit for NT-proBNP though the paper (expressed either as ng/L or pmol/mL)

3. Reference #18 is incomplete.

4. Number the pages

5. Revise carefully English style and spelling (see for instance the conclusive sentence or “pathophysiological”).

6. Y-label of Figure 1, panel C, looks incorrect.

7. Since BMI is the stratification variable in Table 1, do not show the p value for this variable.

8. Table 2: check the abbreviation for NYHA class; provide SE for standardized beta-coefficient.

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

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

Disclosures: I have received institutional research grants, honoraria and travel grants from Roche Diagnostics and BRAHMS AG, manufacturers of some reagents discussed in the reviewed paper.