Reviewer's report

Title: B-Type Natriuretic Peptide versus Amino Terminal Pro-B Type Natriuretic Peptide: Choosing the optimal heart failure marker in patients with impaired kidney function.

Version: 1 Date: 22 January 2013

Reviewer: Ana Ricardo

Reviewer's report:

In this manuscript entitled “B-Type Natriuretic Peptide versus Amino Terminal Pro-B Type Natriuretic Peptide: Choosing the optimal heart failure marker in patients with impaired kidney function”, Ghani et al report the results of a cross-sectional study evaluating the associations between kidney function and levels of b-natriuretic peptide (BNP) and NT-proBNP among 190 patients from a ambulatory clinics in Pakistan. In brief, the authors found that both BNP and NT-proBNP were elevated in individuals with impaired kidney function even in the absence of heart failure and therefore higher cut-off values should be used in this population.

A. Major Compulsory Revisions:

Abstract:
1. Indicate the study design (cross-sectional).
2. In the results section, please state clearly that the overall sample size is 190 (currently it appears as if there were 190 males in the study. Also, recommend adding the number of participants with and without heart failure.
3. Given that the main objective of the study as stated in the abstract is to identify better cut-off points for the natriuretic peptides among individuals with heart failure, recommend including this information.

Methods
4. The use of the Cockcroft-Gault equation along to estimate GFR seems inappropriate given that this equation was derived primarily from a small sample of Caucasian men. There are better developed equations that should be used instead (or in addition to), for example the Modification of Diet in Renal Disease (MDRD) or the CKD-EPI equation. The validity of these equations in the Pakistani population will need to be commented on by the authors.
5. The distribution of the 190 participants regarding heart failure status is even (50% with and 50% without). Please describe in the methods section the sampling or recruitment strategy employed to achieve this sample size. Similar observation for CKD stage 3 and 4 (77 participants in each category).
6. Please provide rationale (or references) for using ejection fraction of < 40% to define heart failure. - Given that only the left ventricular function is being used in
the study to define heart failure, it would be more accurate to use the term left ventricular failure or systolic heart failure instead of the more generic term of “heart failure”.

7. Recommend avoiding the differentiation between a “significant” versus a “highly significant” p value given the design of the present study.

Results:

8. Provide rationale and/or references for choosing the candidate variables for multivariable analyses.

9. Under the subtitle “Comparison of natriuretic peptides in NYHA groups”: the percentages presented add up to more than 100% (68, 37, 57 and 28%). Please clarify.

10. The use of mean log BNP and log NT proBNP has no clinical relevance. It is understood that this variables are not normally distributed; however in this case the median serum levels would be more useful.

11. The values presented in figure 1 are repeated in the paragraph under the subtitle “Renal Dysfunction and natriuretic peptides”; perhaps the authors should omit the figure or this paragraph.

12. Given that the evaluation of better cut-off values for BNP and NT proBNP was one of the two main objectives of this study, recommend including these in one or two sentences in the results section (and discussion).

13. Please define “significantly correlated”. Correlation coefficients of 0.3 or 0.5 are usually not considered to signify a high correlation.

B. Minor Essential Revisions:

Abstract:

1. In the introduction would avoid using the word “influence” to refer to association between level of natriuretic peptide and glomerular filtration rate (GFR).

Introduction:


3. Recommend spelling out abbreviations when first used (e.g. CKD is used in the first sentence but spelled out in the third sentence of the introduction).

Results:

4. Provide rationale or references for the exclusion criteria, in particular the exclusion of individuals on “hormonal therapy”.

C. Discretionary Revisions:

Introduction:

1. The prevalence of chronic kidney disease (CKD) in the U.S. has been updated

2. It might be relevant for the reader to indicate how the natriuretic peptides are excreted.

**Level of interest:** An article of importance in its field

**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:**

I declare that I have no competing interests