Reviewer’s report

Title: Diagnostic accuracy of plasma NT-proBNP levels for excluding cardiac abnormalities in the very elderly

Version: 1 Date: 23 August 2010

Reviewer: Alisdair D Ryding

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Minor Essential Revisions
1. Table 2. It is unnecessary to include both mean ± SD, and median ± IQR. One or other should be presented.

Major Compulsory Revisions
1. For pragmatic reasons the researchers have restricted the study to nonagenarians that are active and relatively independent (“well-functioning”): such a population is clinically relevant. Nevertheless, the majority of subjects have cardiac abnormalities, as defined by standard reference ranges derived from younger healthy populations. The applicability of these reference ranges to the study population should be discussed.

2. It is debatable whether some of the abnormalities are clinically relevant (eg mild/moderate aortic stenosis, mild mitral stenosis). In my view all the analyses should be repeated excluding these categories.

3. The use of the Teicholz method of estimating left ventricular ejection fraction (LVEF) is sub-optimal, and the Simpson’s bi-plane method would be preferable. The study failed to show any significant correlation with LVEF (which is unusual given the plethora of studies demonstrating this) though modest correlations with other measures of left ventricular function were demonstrated. Presumably the small study size, relatively healthy population, and suboptimal method of measuring LVEF reduced the power to demonstrate this. Please discuss.

4. Table 4. I am not convinced that using the upper limit of NT-proBNP for the lowest tertile as the cut off point for all ROC analyses is valid. The cut off that provides the best AUC should be determined for each individual analysis. Please report specific cut off values for ROC analysis optimized to each parameter.

5. Table 4. ROC analysis is conducted for “abnormal LV dimensions and/or LV dysfunction”: this composite category is rather broad, and some of the variables are presumably interdependent. I would prefer to see separate analyses for each component if possible ie LV dimensions, LV hypertrophy, LV systolic dysfunction.

6. The discussion should be expanded to include a more thorough critique of the limitations of the study, in particular the small selected sample, and how this might impact on the generalization of the findings. The potential clinical relevance of the study findings should be discussed in more detail.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests