Reviewer's report

Title: The Relationship between Mitral annular systolic velocity and Ejection Fraction in Patients with Preserved Global Systolic Function of the Left Ventricle

Version: 2 Date: 17 July 2013

Reviewer: Konstantinos Farsalinos

Reviewer's report:

MAJOR COMPULSORY REVISIONS

In general, please use past tense in the whole text, since the observations were made in the past (when the study was performed and measurements were made).

Abstract results section

1. The statement “when it is #8.3 cm/s predicts preserved EF (sensitivity 90%, specificity 85%, p=0.028).” should be removed, for reasons I explain later in the comments.

Abstract conclusions

2. “This approach is useful especially when the IQ is poor.” This should be changed with: “This approach may be useful especially when the IQ is poor.” The reason for the change is that in fact you did not perform the measurements in low IQ images. Thus, although I agree with the comment you made, it remains a theoretical statement.

Keywords:

3. I find them inappropriate. The keywords should probably be mitral annulus velocity, ejection fraction, systolic function, Sm, TDI or other similar keywords.

Main Text

Objective

4. Paragraph 1. “…..as well as a Sm cut-point, from which EF could be predicted as preserved or not.”. This is a major issue of the paper. You clearly state in Methods section that “All the patients were in sinus rhythm and had a preserved EF (>55%).” Since all patients had preserved EF, how can you define an Sm cutoff point which detects whether EF is preserved or not? You did not test patients with reduced EF, so you do not know the Sm values in patients with low EF. Therefore, all statements about setting an Sm cutoff point, as well as ROC analysis and figure 4 should be removed from the manuscript.

Statistical analysis

5. I think table 1 (demographics and characteristics) was analyzed by using ANOVA. Please report this in statistical analysis section.
Results
6. This section should be re-written from the beginning.

It is strange that you start this paragraph by reporting results of multiple regression analysis, which was performed last. Table 2 should be the last table. I would suggest using this sequence:
A. Comments on table 1 (baseline characteristics), without repeating the numbers
B. Results of univariate correlations in each subgroup (tables 3, 4 and 5).
C. Results of multivariate regression analysis (table 2)
D. Intraclass correlations

7. It is extremely important to remove all results and discussion about Sm predicting normal EF (e.g. paragraph 4). Additionally, remove Figure 4.

8. Table 3, 4 and 5: there seems to be a difference in Sm between subgroups. However the correlations between Sm and EF are very strong for all groups. This should mean that each subgroup must have similar differences in EF, because in order to get so high correlations the two variables should move in parallel. Please report the corresponding EF values of all subgroups in tables 3, 4 and 5 in order to see this.

9. Table 2: Please use the same abbreviation for subgroups as in other tables. So, DD should be HTN/DD, DM should be HTN/DM.

10. Table 5: Controls should be renamed as healthy, otherwise use the word controls for all other tables.

11. Table 6: Rename patient groups according to suggestion made above for table 2. Also, please check the ICC for Sm, they are exactly the same numbers in DD, DM and HTN/DD/DM, which is strange!

12. Paragraph 7: “Subjects with HTN define a line as a result of Sm deceleration, which depends on the grade of HTN. This line continues slowing down significantly depending on superimposed DD, DM, combination between them, as well as the magnitude of these conditions.”---Should be rephrased, it is difficult to understand the meaning. Did you examine Sm according to the magnitude of DD or DM? It does not seem to be the case according to the reported analysis and results.

Discussion-Conclusion
13. Remove any part discussing about Sm cut-off point of defining normal EF.

14. Another important limitation is that the correlation between EF and Sm in low ejection fraction was not examined. Therefore all results apply to patients with normal EF. This should be stated clearly in discussion and conclusion. This study evaluated the prediction of EF by Sm only in patients with normal EF.
Conclusion
15. Remove everything about Sm cut-off point.

MINOR COMPULSORY REVISIONS
Main text-Background
First paragraph, first sentence: remove all the “the”.
16. “This parameter measured by pwTDI correlates more strongly with plasma BNP levels than those measured by M-mode.”---add comas: “This parameter, measured by pwTDI, correlates more strongly with plasma BNP levels than those measured by M-mode.”
17. Second paragraph: “Even though the Sm of the MA”, remove the “of the MA”.

Methods
First paragraph:
18. “All participants were agree and signed…” should be corrected as: “All participants agreed and signed…”
Second paragraph:
19. “A physical examination was performed, which included blood pressure, anthropometric measurements, and an electrocardiogram.”
Please rephrase as:
“Physical examination, which included blood pressure and anthropometric measurements, and an electrocardiogram was performed.”
19. “The standard laboratory blood tests were…”- please remove the “The”
20. “After that, eligible subjects were invited….“-better say: “Subsequently, eligible subjects were invited….“

Paragraph 3:
21. “The longitudinal contraction of the LV was investigated…” Please remove the “The”
22. “In accordance with the study protocol, 3 consecutive complexes were analyzed, and the mean value was calculated.” I would prefer instead of the word “complexes” to use the phrase “cardiac cycles”.

Results
23. Paragraph 6: “The data demonstrate that gender and age influence Sm(avg) such that the highest velocities are observed in men and they decrease, with aging and in women.” Need to be rephrased: “The data demonstrate that gender and age influence Sm(avg) in a way that higher velocities are observed in men, while they decrease linearly with age.”
24. “According to Sm(avg), there is a significant decrease of velocity.”—Remove
this sentence.

25. Paragraph 7: “Subjects with HTN define a line as a result of Sm deceleration, which depends on the grade of HTN. This line continues slowing down significantly depending on superimposed DD, DM, combination between them, as well as the magnitude of these conditions.”---Should be rephrased, it is difficult to understand the meaning. Did you examine Sm according to the magnitude of DD or DM? It does not seem to be the case according to the reported analysis and results.

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

**Quality of written English:** Not suitable for publication unless extensively edited

**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