Reviewer's report

**Title:** Additional value of lateral tissue Doppler imaging in the assessment of diastolic dysfunction among subjects with pseudonormal pattern of mitral inflow and septal tissue Doppler imaging

**Version:** 1  **Date:** 22 July 2013

**Reviewer:** Sangchol Lee

**Reviewer's report:**

This study deals with a unique group of subjects and tries to overcome the shortcomings of current guidelines for grading diastolic dysfunction with echocardiography. It is relatively well-written, and provides some new insights into echocardiographic data. However, it will need some major revisions for publication.

**Major Compulsory Revisions**

Although the issue of discrepancy between septal and lateral mitral annular TDI imaging is compelling, the study is looking at subjects with 'pseudonormal' patterns of mitral inflow velocity data and E'/A'<1 patterns of septal mitral annular DTI. However, even though the term 'pseudonormalization' is a generally accepted term for mitral inflow velocity data, the E'/A' ratio it is not well received as a universal parameter for analysis of diastolic function with TDI. Furthermore, the A' is not usually put into use when assessing diastolic function due to various reasons. As this is so, I recommend the data be re-analyzed by only recruiting the patients with grade II and grade III diastolic dysfunction by the current guidelines (using e' and E/A) and then categorizing the two groups with high and low lateral E' velocity.

The multivariate analysis for assessment of independent association of variables does not seem to be appropriate. As the study is focused on the lateral mitral annular DTI data, the analysis should be performed with the lateral DTI data as the dependent variable, not the other way around. Also, the larger LAVI has to be higher independently in the group with lateral annular E'/A'. This is related to the above statement, as the group with low lateral annular E'/A' was associated with higher frequency of grade II diastolic dysfunction, and the majority of the subjects with lateral annular E'/A'>1 showed normal diastolic function. It is certainly an internal statistical error. Furthermore, the multivariate analysis should include important echocardiographic data such as septal annular e' velocity and E/e' ratio, not only the clinical variables form history.

Is the LAVI associated with E'/A' velocity in other groups of patients such as the patients who showed E/A<1 on mitral inflow pattern and those with septal E'/A' >=1? If that is the case, there is no sense stating that this is significant in the subject group, as it is a consistent finding.
Minor essential revisions

In the methods section in the abstract and in the introduction section, the statement 'pseudonormal pattern of mitral inflow and septal TDI' should be clarified. The statement can be misinterpreted as stating that 'pseudonormalization' is also a term used for septal mitral annular TDI patterns.

As stated above, re-analysis of the data is recommended. If done, figure 3 would be essentially irrelevant and unnecessary.

There seem to be many mistakes in spelling and grammar. I suggest the manuscript be reviewed by another expert English editor before submission.

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

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I do not have any competing interests.