Reviewer's report

**Title:** A modified echocardiographic protocol with intrinsic plausibility control to determine intraventricular asynchrony based on TDI and TSI

**Version:** 1  **Date:** 19 August 2009

**Reviewer:** Quirino Ciampi

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The authors described the new method to detect intraventricular asynchrony, with combined tissue synchronization imaging (TSI) and tissue Doppler imaging (TDI). The time intervals from the onset of aortic valve opening (AVO) to the peak systolic velocity (S') were measured separately in six basal segments in the apical four-, two-, and three-chamber view.

The authors demonstrated that the combination of TDI and TSI with intrinsic plausibility control improves intra- and interobserver reliability and allows easy and reliable assessment of cardiac asynchrony.

The paper is interesting and well written.

However, there are some suggestions:

Major

1. The new method, that the authors illustrated to assess intraventricular dyssynchrony, is the method is overly self referential. The authors should include references to support their method to assess intraventricular dyssynchrony.

2. In the Methods section the authors said that ..‘To detect asynchronous regions, we first identified the segment with the shortest AVO-S' interval. As this segment most likely represents vital and intact myocardium it served as a reference for other segments”.... However the authors studied controls subjects or patients with LBBB, without history of ischemic cardiomyopathy: hence all ventricular segments should be vital and intact! The authors should clarify this crucial point.

3. In the Background section is missing the aim of the study.

4. In the Background section and in the Discussion section the authors illustrated the role of intraventricular dyssynchrony in CRT. However the authors did not studied the effect of the new method in the response to CRT. Then the authors should change the Background section and that Discussion section with arguments in support of their method to assess intraventricular dyssynchrony, compared to the others and of pathophysiological role of intraventricular dyssynchrony in DCM patients, regardless of CRT.

5. There is an important problem with the references: the authors repeated several times the same reference with different numbers: 1 - 2, 4 - 22, 6 - 29, 7 - 30, 8 - 9 - 10, 11 - 21, 12 - 23, 13 - 24, 14 – 25, 15 – 26, 16 – 27, 17 – 28 - 35, 18 – 31, 19 – 32 - 33, 20 – 34. The correct number of the references is 17 but not
Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
I declare that I have no competing interests