Reviewer’s report

Title: Index of contractile asymmetry improves patient selection for CRT: A proof-of-concept study

Version: 0 Date: 06 May 2019

Reviewer: Jelena Celutkiene

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This is an interesting study of original 3D reconstruction of regional SR differences. I have conceptual concerns regarding the use of strain rate values for dyssynchrony evaluation. Since strain rate reflects the deformation rate, and not deformation amount or timing, its value seems questionable compared to mechanical dyssynchrony index or other parameters based on time-to-peak approach. In ischemic cardiomyopathy, dominating in this sample, differences of strain rate may mostly be determined by wall motion abnormalities due to infarcted areas. Greater strain rate difference may show larger zones of preserved contractility - it is not analyzed; in such case whether proposed ICA marker is better than contractility reserve? To make this article convincing in additional value of ICA I suggest a comparison with some time-to-peak modality, better 3D, or contractile reserve (or myocardial work index) including them in multivariate analysis. Also, usual WMSI and strain parameters should be shown.

Another question is a selection bias, as nor image quality neither presence of AFib, no BNP are described.

Some figures are of poor quality and too small, thus not suitable for reading - Fig 2, Fig 7.

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