Reviewer’s report

Title: Non-uniform Recovery of Left Ventricular Transmural Mechanics in ST-segment Elevation Myocardial Infarction

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Reviewer: Rosa Sicari

Reviewer’s report:

The present manuscript shows that the recovery of LV subendocardial shortening strain seen in the longitudinal direction underlies the improvement in LV global function despite persistent abnormalities in radial and wall motion score index. The study hypothesis is pathophysiologically sound and methodology appropriate. However, there are a few issues that authors should address:

1. Please detail the patient population characteristics
2. Authors refer to a control group that is never described in detail. To have a normal echo is not synonymous of absence of disease.
3. It is not clear why authors need a control group since they are evaluating the changes before and after revascularization.
4. There is no description of how successful were the revascularization procedures. Even though the outcome analysis is based on EF recovery, the success rate of the invasive procedure should be weighed in the analysis.
5. In line with previous comment, authors state that WMSI is a worse parameter than longitudinal strain because it is the expression of only radial LV mechanics. However, WMSI is a subjective marker whereas strain is a more objective one and this should be considered in the analysis (how experienced were the sonographers). Authors report the intra and inter-observer variability of strain but not for WMSI.
6. Wall motion abnormalities are the expression of deep subendocardial underperfusion. Ischemia induces abnormalities only when more than 30% of the wall is altered. The possibility to analyse subepicardium performance would be highly informative. Please address.
7. Strain is able to recognize myocardial viability. Please discuss similar studies.
8. The clinical implications of the study are not clear. WMSI is a dirty marker of regional dysfunction but highly feasible and informative in the clinical arena.

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

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'