Reviewer’s report

Title: Accurate assessment of LV function using the first automated 2D-border detection algorithm for small animals - Evaluation and application to models of LV dysfunction

Version: 0 Date: 01 Mar 2019

Reviewer: Vincenzo Lionetti

Reviewer’s report:

Grune et al. have performed an interesting methodological study in order to evaluate cardiac function by novel automated two-dimensional software algorithm (Auto2DE) for small animals (mice and rats) and to compare it to the standard use of manual 2D-echocardiographic assessment (2DE). They have hypothesized that novel Auto2DE will provide rapid and robust data sets in accord with manually assessed data of small animals. The study is well conducted yet some issues should be clarified and additional data are mandatory.

Major issues

1) Table 1: the authors should add data on heart rate, LV end-systolic and end-diastolic thickness.

2) Table 2: the authors should add data on heart weight of mice db/db+, db+/db+ and rats. Moreover, the authors should calculate the HW/BW ratio for each experimental condition.

3) Table 2: animals recruited in the study have different age. The authors should discuss the impact of age on cardiac function assessed by echocardiography in order to justify the methodological approach in animals of different age.

4) The authors should add in the text, figure legends and tables the sample size for each experimental group.

5) The authors should add informations about the type and dose of anesthesia used to perform the echocardiographic assessment in each experimental group.

6) How much was the body temperature of mice and rats during the echocardiographic assessment?

Level of interest
Please indicate how interesting you found the manuscript:

An article whose findings are important to those with closely related research interests

Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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