Author's response to reviews

Title: Native cardiac reserve predicts survival in acute post infarction heart failure in mice

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Ref.: Ms. No. 9517474021640622

Reviewer 1

A very interesting, provocative and to my knowledge original study, showing that a reduced native cardiac inotropic and chronotropic reserve is a predictor of worse survival in mice with acute myocardial infarction.

I have only minor comments:

1. Abstract missing in my copy! Please, add.

Author response:

The abstract is now added

2. Methods: please, add 1 figure showing the experimental setting: mouse, echo machine, transducer, technique of insonation.

Author response:

A new figure is now added to the method section on page 4 line 2 and line 7

3. Results: do you have data on Pressure/Volume relationship? This is a stronger index of cardiac reserve than fractional shortening, and can be easily obtained. End-systolic volume of left ventricle can be derived with Teichholz method from your left ventricular end-diastolic diameter, systolic pressure should be available, the delta (rest-peak stress) Peak Systolic Pressure/End-systolic Volume approximately left ventricular elastance (Bombardini T, Cardiovasc Ultrasound. 2005;3:27).

Author response:

Unfortunately no pressure was obtained during the echocardiographic examination since this experiment needed to be non-invasive due to the experimental setup of inductions of myocardial infarctions. However, this would have been of most interest and in the future non-invasive models of pressure
measurements will be looked into.

4. Discussion: can a reduction in Beta-1 receptor density and/or sensitivity account for reduced inotropic or chronotropic reserve and be responsible of observed findings?
   Author response:
   We acknowledge this possibility and additional comments have been made in the manuscript. In the discussion page 7 lines 13-16.

5. Please, correct some minor spelling mistakes: i.e., page 5, line 1: finish is Finnish.
   Author response:
   The manuscript has now been changed after revision by a professional scientific editor.

6. References are not properly formatted
   Author response:
   The references have now been properly formatted.

Reviewer 2

This is an original and important report linking cardiac reserve to a protective effect on subsequent myocardial infarction in a mice model.

Minor comments:
1. Tables (1 and 2) are quoted in the text but missing in my copy.
   Please add
   Author response:
   The tables are now added into the manuscript.

2. Please add a figure with the study protocol and another one with the experimental echocardiographic setting.
   Author response:
   Two new figures are now added to the manuscript, one in the method section under Anesthesia and Echocardiography, page 4 line 2 and line 7 and the other one under Induction of myocardial infarction on page 5 line 10.