Reviewer's report

Title: Loss of ectonucleotidases from the coronary vascular bed after ischemia-reperfusion in isolated rat heart

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Reviewer: Hussain Contractor

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The paper by Takahashi-Sato et al examines the metabolism of adenine nucleotides and adenosine in the coronary vascular bed in an isolated perfused rat heart model both before and after simulated ischemia-reperfusion injury. I congratulate the authors on their careful work and analysis and enjoyed reading the manuscript. A few points occurred

Major

1. The authors suggest that the release of ATPase may be used as a marker for the extent of ischemia-reperfusion injury. Did the authors make any attempt to try and correlate ATPase activity with markers of ischemic injury such as coronary effluent creatine kinase or troponin release? Alternatively, simple measurement of infarct size histologically by TTC staining would also be a useful correlate and would be interesting to compare in the young and aged animals.

2. A simple experiment to strengthen the findings would be to add an ischemic preconditioning group and measure adenine nucleotide and adenosine metabolism in this group – a decrease in ectonucleotidase release from the post-ischemic heart would justify the authors claim that this may be an important target for maintaining post-ischemic cardiac function.

3. Can the authors provide any evidence that their intervention by giving adenine nucleotides/adenosine, did not act as a preconditioning stimulus in their model. There is wide ranging evidence that adenosine in particular may act as a preconditioning agent and comparison of infarct size or markers of ischemic injury would be useful with a sham injection arm.

4. The authors have not provided a limitations section in the discussion.

Minor

1. Wistar rats, not Wister

2. Although variations are often seen, Langendorf is more properly spelt with one f

3. In the methods section, mention should be made of whether the heart is subjected to cardioplegia before cannulation or whether the animals are ventilated and the heart cannulated in-situ.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

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