Reviewer's report

**Title:** In vivo Assessment of Arterial Stiffness in the Isoflurane Anesthetized Spontaneously Hypertensive Rat

**Version:** 1  **Date:** 8 April 2014

**Reviewer:** Dan E Berkowitz

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This is an somewhat interesting study which addresses the question as to whether isoflurane anesthesia will allow the determination of differences in vascular stiffness in rodent models. The investigators use both invasive (Ea) and non-invasive measures (PWV) to address this. They demonstrate that there is a significant increase in PWV and Eal in old vs young SHR rats even under isoflurane anesthesia. While there is some merit to the study, there are major concerns that do need to be addressed.

**Major issues**

1) PWV is influenced by blood pressure. How do the investigators conclude that the higher PWV measured in SHR rats is independent of the elevated arterial pressure? Lack of blood pressure normalization is a significant limitation of this study. If the investigators are recommending that PWV can be used as a measure of stiffness in SHR rats regardless of blood pressure influences, then this should be explicitly stated. However, blood pressure is a critical component of PWV and it thus cannot be ignored.

2) Using isoflurane for non-invasive PWV measurement is a standard lab procedure and using PWV to measure stiffness in SHR rats is thus not entirely novel. Thus, expanding the introduction by addressing the following questions would provide better context for the study:

   What methods were used previously to measure stiffness in SHR rats? Was isoflurane used in these methods? Is Ea ro PWV better than the other methods that have perhaps been utilized

   Why would PWV and Eal be better or more convenient laboratory measures of stiffness?

**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:

None