Reviewer's report

Title: Microvessel Changes after Post-ischemic Benign and Malignant Hyperemia: Experimental Study in Rats

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Reviewer: Roman Huber

Reviewer's report:

Major)
1) In the introduction, a classification of hyperemia due to a PET-study published as supplement to JCBF is given. Due to the limited access this is inconvenient. The following section describes a somehow inconsistent hypothesis (while type 2 and 3 seem to have small infarcts, the authors describe type 2 and 3 as “malignant”). Probably the authors refer to their own classification given in the methods section, but this should be clarified. Types of hyperemia should probably given as a additional table.

2) On page 10 results of different types of hyperemia are described. However the signs are identical for these groups (“#”). This is probably due to a conversion-problem, please clarify.

4) The authors postulate, that longer times of ischemia as well as thrombolysis are associated with malignant hyperemia. However longer times of ischemia are not associated with hyperemia, as group 4 did not demonstrate this. Please clarify.

Minor)
3) In Table 1 exactly the same numbers are given for group 2 and 3 concerning the rCBV and rMSI. This should be clarified.

5) Although all in all a sufficient number of animals has been investigated, the results for LSCM and TEM are based on only 2 animals of each group. Therefore several explanations in the discussion section are very speculative. This should be mentioned as limitation of the study.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.