Reviewer's report

Title: The maximum standardized uptake value of 18F-FDG PET scan to determine prognosis of hormone-receptor positive metastatic breast cancer

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Reviewer: Kazuysohi Suga

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General Impression;

I agree with the authors statement saying that it is important to establish whether can SUVmax as identified by PET scanning differentiate luminal A from luminal B tumors, and whether can SUVmax predict the outcome of metastatic breast cancer patients with luminal subtypes. This study have an unique and interesting point evaluating the relation of SUVmax of metastatic sites after relapse and the outcome of metastatic breast cancer#MBC#patients with luminal subtypes. As the authors stated, the evaluation of Baseline SUVmax of metastatic sites after relapse may provide important information about prognosis. The authors showed that Baseline SUVmax of MBC was significantly associated only with number of metastatic sites and presence of visceral metastasis, and showed that Baseline SUVmax of MBC cannot be used as a noninvasive indicator to differentiate luminal A from luminal B subtypes. The statistics and graphs seem to be well written. The followings are comments and queries for improving the quality of this paper.

1.Methods;

Many complicated factors seem to influence on FDG uptake at metastatic lesions in the patients studied here. Treatment (first-line therapy) before FDG PET scan may significantly show influence on FDG uptake at metastatic lesions. The assessment of metastatic lesions on pretreatment (without first-line therapy) FDG PET scan may be desirable for the proposed analysis. I can not see the locations of metastasis in the text or Tables. Are these lymph node or bone. Bone metastasis of breast cancer is often osteoblastic, and osteoblastic bone metastatic foci usually show low FDG uptake, regardless of biologic behavior of tumor cells. Therefore, I think that the location of metastasis is important factor influencing on FDG uptake. Please describe the locations of metastasis in patients with non-visceral metastasis, which were evaluated in the present study.

2.Discussion;

Osteoblast ic bone metastatic foci in patients with breast cancer usually show low FDG uptake, regardless of biologic behavior or proliferative potential of tumor cells. Is the assessment of FDG uptake in all the metastatic lesion regardless of the location (bone, lymph node, or soft tissue) adequate for this kind study or not? Please discuss this issue.
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'.