Reviewer's report

Title: Prognostic value of metabolic response in breast cancer patients receiving neoadjuvant chemotherapy

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Reviewer: Mounia Beloueche-Babari

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The study reports findings relating to metabolic alterations that may be useful as biomarkers for predicting breast cancer patient prognosis following neoadjuvant chemotherapy (NAC).

The study design is sound and the findings offer important new insights into the biological factors that may influence patient outcome. The findings of the study contribute an important addition to the field of clinical cancer imaging.

The report shows that similar metabolic effects are observed following NAC treatment in patients with stable disease and those with partial response. However, a number of metabolic differences between survivors and non-survivors are reported, primarily a fall in choline containing metabolites and glycine in the former group and a rise in lactate in the latter group.

Some minor comments for the authors to consider:

1. The differences in effects on lactate and glycine appear to be more robust in the current context and should perhaps be highlighted as such.

2. Increased tumor glucose is observed in the survivor cohort that is postulated to reflect decreased aerobic glycolysis. Could the build-up in glucose also be reflective of increased uptake?

3. The authors refer to their previous study in Reference #15 as agreeing with the current findings. Both studies were done in breast cancer patients and both looked at metabolic predictors of survival following NAC. For clarity, it would be useful to spell out the differences between the two studies.

Level of interest: An article of importance in its field

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