Reviewer’s report

Title: Apparent Diffusion Coefficient cannot predict molecular subtype and lymph node metastases in invasive Breast Cancer. A multicenter analysis

Version: 0 Date: 20 Sep 2019

Reviewer: Matthias Dietzel

Reviewer's report:

This study aims to re-investigate the potential role of DWI as a biomarker in the context of predicting lymph node MTX and molecular subtype. The authors performed a retrospective multicentric DWI study in a high number of breast cancers. They conclude that DWI is not able to discriminate molecular subtypes and cannot be used as a surrogate marker for disease stage or proliferation activity.

The material - I am convinced of that - is of high scientific value. However the presentation of the material is limited by nearly all central aspects of STARD criteria. Most of all

* Patient selection: unclear

* MRI: protocol not clearly enough described. Methodology of harmonization of ADC measurements among the centers missing a study with expected faint differences in my eyes a must (. In a clinical setting not necessary.)

* MRI analyzes: Not specified

Intro

Please provide more background on dwi and the rationale that it might be used as a biomarker.

Epidemiological data on breast cancer less important in this article

M&amp;m

Explain indications for breast MRI

Insufficient description of MRI parameters:

- in plane resolution.

- Number of b-Values (probably 2 but a range is given).

- Fat saturation?
- quality management in terms of ADC standardization explorative/formal comparison, phantoms etc.)

- Multiple multicentric lesions?

No description of MRI analysis:

- how were lesions identified?

- how were lesions measured?

- DWI?

- DCE? If yes add details on DCE.

- Reader: experience, blinding etc.

Stats:

- Any power analysis considered, as this will impact the key result of your study

- Predictive performance addressed (odds ratio or similar value)

Results, Discussion, Abstract, Tables: Revision recommended acc. to issues raised above

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

No

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

**Quality of written English**
Please indicate the quality of language in the manuscript:

Acceptable

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