Reviewer’s report

Title: Screening mammography for second breast cancers in women with history of early-stage breast cancer: Factors and causes associated with non-detection

Version: 0 Date: 14 Oct 2018

Reviewer: Takahito Nakajima

Reviewer's report:

The authors reported the factors and causes associated with non-detection of second breast cancers on screening mammography in women with a personal history of early-stage breast cancer (PHBC). This manuscript includes a fatal statistical misunderstanding of their data. Some critical issues should be discussed with regard to the methods to have a final diagnosis of secondary in-breast cancer and the duration between final diagnosis of secondary in-breast cancer and MMG.

Major issues:

#1 Tables

1) The presentation of the tables is strange, which may be related to an inaccuracy of statistical analyses. Table legends are needed for readers to understand these analyses.

2) Univariate logistic regression analysis was employed for the statistical analyses in Tables 1 and 2. However, I feel that Chi square test would be preferable since each analysis can be more simplified in Tables 1 and 2. For example, "Symptom of PBC" was divided into two groups, "No" and "Yes", while the MMG detection included "No" and "Yes". This 2 x 2 table can be analyzed by a Chi square test.

3) Please reconsider these analyses in the tables. This misunderstanding might derive from the table presentation itself. Please see an attached file that demonstrates the table presentation using Table 3 as an example. Other two tables have similar problems.

4) Calculation of the incidences presented by "%" appears improper. For example, in Table 3, although the number of fatty patients, "71" was divided by the total number of non-detection, the number of fatty patients, "71", should be divided by the total number of patients with fatty breast. In my opinion, this misunderstanding obscured the statistical errors.

#2 Clarification of the final diagnostic methods of secondary in-breast cancer

In this manuscript, the methods of final diagnosis could not be found. Please clarify the methods used for the final diagnosis.
#3 Investigation of the duration between final diagnosis of secondary in-breast cancer and MMG.

The short duration between final diagnosis and MMG acquisition would contribute to the high detectability of secondary in-breast cancer on MMG. The authors should investigate the correlation between the duration between the final diagnosis and the acquisition of MMG.

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

Yes

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

Yes

**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 recommend additional statistical review

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