Reviewer’s report

Title: The emerging diversities in breast cancer diagnosis - a regional population based study

Version: 2 Date: 30 December 2009

Reviewer: Rulla May Tamimi

Reviewer’s report:

The authors have conducted a descriptive study to examine the frequency of molecularly defined classes of breast cancer in a Saudi population and compare the frequencies to other published studies primarily in Caucasian population. This is an important and interesting area of research. My primary concerns have to do with the primary goal of the study and the classifications used and the presentation of the data.

Major Compulsory Revisions

The major aim of this study is to compare the frequency of the molecular subgroups between the Saudi population and other published studies. It is unclear, why then the authors have not used the same categorizations as others have used previously. It makes it difficult to discern whether these differences are due to true differences, or just differences in the classification. Presumably, the differences will not be too large, but given that this comparison is the primary aim of the study, and the investigators have all of the necessary data to do the comparison of the same classification, this should be the primary analysis. The authors can still include additional classifications as secondary analyses if necessary.

- Minor Essential Revisions

1. The introduction section is too long. This section should provide enough rationale for the motivation of the current study.

2. The authors should provide additional descriptive information on the population under study. How were these cases selected? Were they randomly selected? What time frame do they cover (years of diagnosis)?

3. A large portion of the samples are from true-cut biopsies. Are the frequencies of phenotypes different comparing the true-cut biopsy specimens to the others?

4. The TMAs have two cores per sample. How did the authors score a tumor if the two cores were not scored the same?

5. The authors should include the descriptive characteristics of tumors (histologic type), grade, age at diagnosis by molecular class as a table.

6. Figures 2 and 3 should include the total N in each of the studies next to the country.

7. The comparison of the frequencies of classes between the current study and
other studies should be included in the results and not the discussion. The p-value presented is presumably from a chi-square test. This should also be described in the statistical analysis section.

8. There are some minor typographical errors. For example in the abstract, “tmors” needs a u. On page 11, it says “Donal et al” yet reference 34 refers to Brennan et al.

8. Figures 4,6,7 would be better presented in a table with Ns and frequencies.

- Discretionary Revisions
9. Figures 5,8,9 are unnecessary.
10. The figure legends for 2 and 3 can be improved.
11. The title can also be improved to better indicate what the current study is about. Currently it is too broad.
12. The conclusion of the paper should include conclusions from the current study.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

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