Reviewer's report

Title: Genotype-phenotype correlations among BRCA1 c.4034delA (4153delA) and c.5266dupC (5382insC) mutations carriers from Latvia

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Reviewer: Sergi Castellvi-Bel

Reviewer's report:

The research article submitted to BMC Medical Genetics by Plakhins et al. presents prevalence and genotype-phenotype correlation for BRCA1 founder mutations in a population-based series of unselected breast and ovarian cancer cases from Latvia. Based on their data, they suggest that carriers of c.4034delA and c.5266dupC founder mutations have different risk of breast and ovarian cancer development, age of onset discrepancies and a distinct breast cancer prognosis.

1. Is the question posed by the authors well defined?
I think their research objectives are well posed.

2. Are the methods appropriate and well described?
Patients and methods are well described.

3. Are the data sound?
Their data is sound. They include 2,546 breast cancer cases and 795 ovarian cancer cases and they screen them for three BRCA1 founder mutations common in Latvia and Eastern Europe.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
The authors’ manuscript adheres to relevant standards for reporting and data deposition.

5. Are the discussion and conclusions well balanced and adequately supported by the data?
Discussion and conclusions are well balanced. On the other hand, in order to improve them, the authors should comment/hypothesize somehow about differential clinical/screening/therapeutic strategies for asymptomatic carriers in familial cases.

6. Are limitations of the work clearly stated?
I suggest the authors to include a percentage for the three analyzed mutations among the total BRCA1 mutated alleles in breast and ovarian cancer in their population. A limitation of their study is that they only analyze three founder mutations and not the entire BRCA1 gene.

7. Do the authors clearly acknowledge any work upon which they are building,
both published and unpublished?
Yes, they do acknowledge any work upon which they are building.
8. Do the title and abstract accurately convey what has been found?
I suggest the title should be “Genotype-phenotype correlation among BRCA1 4153delA and 5382insC mutation carriers from Latvia”. Abstract is fine.
9. Is the writing acceptable?
Manuscript writing needs a general English correction.
I would also suggest the authors to eliminate Figure 1, since it is not necessary in my opinion.

**Level of interest:** An article of importance in its field

**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.