Reviewer's report

Title: Association of vitamin D receptor polymorphisms with the risk of prostate cancer in the Han population of Southern China

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Reviewer: Sonja Berndt

Reviewer's report:

This case-control study investigates the association between polymorphisms in the vitamin D receptor (VDR) gene and the risk of prostate cancer in a Han population in China. Although numerous studies have investigated the association between these polymorphisms and prostate cancer among men of European descent, less has been published among Asian men. The major limitation of this study is its small sample size. In addition, a number of errors need to be corrected. Specific comments are as follows:

Major Compulsory Revisions

1) Background: The authors state that the relationships of age, race, genetics and geography with prostate cancer incidence is not clear. However, I would argue that the relationship of factors, such as age, is clear, it is just that the underlying mechanisms or reasons why this is true are not clear. Also, the authors state that polymorphisms in the 3' end of the gene may correlate with VDR mRNA stability and gene transcription; however, not all studies have observed this correlation.

2) Results p.9: It is not clear what is meant when the authors mention the “irrelevance of survival to old age.” I assume the authors are referring to the fact the SNPs are not associated with age as the authors do not appear to have done a survival analysis, but this is not clear.

3) Results: How do the minor allele frequencies reported in this study compare to other studies of Asian populations? In most studies, the ‘A’ allele at BsmI is rare in Asian populations. Here the ‘G’ allele at BsmI is rare, which is inconsistent with other databases.

4) Results p.10: Not all studies of BsmI have observed the same association with prostate cancer. A more comprehensive review is warranted. Also, the reference for the Japanese population (1st line of page 10) appears to be incorrect.

5) Results p. 10: Ma et al found that the BB (or AA) genotype was associated with higher plasma 1,25(OH)D, not the GG genotype.

6) Discussion p 10-11: It is not clear what SNPs are included in the haplotypes being discussed.

7) Table 3: I am not sure that giving the mean age for each genotype is useful. It would be more useful to give the odds ratios for the association with prostate cancer as this is the objective of the study.
Minor Essential Revisions

8) Methods: Please clarify the definition of localized and aggressive cancer. Were any samples replicated for quality control?

9) Table 2: Is the age the age at diagnosis? Please clarify.

10) Table 4: Please give the number of cases and controls with each genotype for the different strata in the table, so that the reader can assess the basis and stability of the odds ratios presented.

11) Table 6 and abstract. It is not clear what the reference group is for the haplotypes. Is each haplotype being compared with all other haplotypes or is each haplotype compared with one reference haplotype? It is usually most useful to choose one haplotype as the referent and to compare each haplotype to the referent haplotype. Also it is not clear what the order of the SNPs is in the haplotype.

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

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.