Comments On: *Apai* and *Fok1* Variants of Vitamin D Receptor Gene Associated with Metabolic Syndrome Among Jordanian Women

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Dear Editor

I read with interest the study by Atoum on "ApaI and Fok1 variants of the vitamin D receptor gene associated with metabolic syndrome in Jordanian women"[1]. The author investigated the association of four common genetic polymorphisms (rs7975232, rs1544410, rs2228570, and rs731236) in the vitamin D receptor (VDR, MIM: 601769) with the risk of metabolic syndrome in Jordanian women. It was found that two polymorphisms were significantly associated with the risk of metabolic syndrome. However, I have some comments on the mentioned research.[1]

The STrengthening the REporting of Genetic Association studies (STREGA) statement recommends that researchers should compare the observed frequencies of genotypes with the expected frequencies based on Hardy-Weinberg equilibrium (HWE) in their control groups using the χ^2 test[2] and ensure that the observed frequencies are consistent with the expected HWE frequencies. However, a large number of published articles have shown that the difference between the expected and observed frequencies is a discrepancy.[3]

I compared the observed genotypic frequencies with the expected ones for four polymorphisms using the information provided in the Table #3 of the above article. The results showed that for the rs2228570 polymorphism there was no significant difference between the observed and expected values (χ^2=0.70, df=1, p=0.401), while the remaining polymorphisms showed significant differences (for rs7975232: χ^2=4.68, df=1, p=0.030; for rs1544410: χ^2=13.57, df=1, p<0.001; for rs731236: χ^2=23.93, df=1, p<0.001).

It has been previously reported that in the presence of sampling bias or genotyping error, a significant difference between the observed and expected values can be seen.[2,4] It can be concluded that sampling bias or genotyping error occurred in the present study. The results reported by Atoum should be interpreted with caution. I should also add that the STREGA statement recommends that when multiple genetic polymorphisms of a given gene are studied, haplotype analysis should also be performed and linkage disequilibrium parameters should be reported. Unfortunately, this was not done.

References

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