Association analysis of polymorphisms rs4245739 in MDM4 gene and Arg72 pro in P53 gene with breast cancer in Iranian- Azeri population

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Abstract

Background: Breast cancer is a clinically heterogeneous and complex disorder and its transformation can occur in different shapes which may be manifested as identical clinicopathologic indices. MDM4 is a negative regulator of p53 tumor suppression pathway. Different researches have revealed that the rs4245739A>C polymorphism of MDM4 in 3′-untranslated region makes it a miR-191 target site which leads to lower MDM4 expression. On the other side the importance of Arg72Pro polymorphism of p53 in breast cancer has been proven. So, the aim of this study is to realize the correlation of these SNPs and the risk of breast cancer in East-Azerbaijan, Iran.

Methods: 199 healthy controls and 206 breast cancer women of Eastern-Azerbaijan, Iran were included. Tetra-ARMS PCR was employed in order to detect alleles of both positions .SPSS for Windows and the SHEsis, online software was exerted for allele typing, genotyping, and haplotype analysis.

Results: different alleles of both MDM4 rs4245739 and p53 Arg72Pro had no significant difference in patients (P>0.05). Also genotypes of neither MDM4 rs4245739 nor p53 Arg72Pro could increase or decrease breast cancer risk in patients in comparison to healthy women. Gene-gene interaction also could not significantly affect breast cancer risk.

Conclusin :Ongoing study resulted that two genetic variants, MDM4 rs4245739 and p53 Arg72Pro polymorphisms, failed to be associated, alone and combinatorially, with the risk of breast cancer in Iranian-Azeri Patients. However, additional well-designed studies on large populations are required to validate this association.