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Evaluating the association of single nucleotide polymorphism (SNP) rs6983267 with esophageal cancer in Iranian patients

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Objective: Esophageal cancer is one of the leading causes of death worldwide. The main problem with esophageal cancer is related to its late diagnosis and therefore poor prognosis. Single-nucleotide polymorphisms (SNPs) in several genes may increase the risk of different cancers. Several genome-wide association studies in various populations have proposed rs6983267 as a susceptibility marker for multiple cancers such as prostate, colorectal, breast, bladder, ovarian, thyroid and lung cancers. Therefore, rs6983267 in chromosome 8q24 was selected for further analysis in esophageal cancer patients.

Material and methods: In this case-control study, 30 patients with esophageal cancer and 45 control samples were collected from different hospitals in Mashhad, Iran. Genomic DNA was extracted from 5 ml fresh peripheral blood and the genotyping was performed by TaqMan allele discrimination method.

Results: Hardy-Weinberg test was done and samples were in equilibrium ($p < 0.05$). Chi square test was used to investigate the association between rs6983267 and cancer development, however the results did not show any significant association and genotype frequencies were similar between control and case groups.

Discussion: In conclusion, rs6983267 did not show any significant association with esophageal cancer in these patients. This might be due to small sample size or the effect of interacting factors. Therefore, we suggest to study this SNP in combination with other SNPs and also in a larger sample size to confirm the results.

Keyword: Esophageal cancer, Single-nucleotide polymorphism, 8q24 region, rs6983267

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