Influence of the polymorphisms CASP3 IVS1-15G>T and CASP8 -652 6N ins/del, associated with apoptosis, in the squamous cells carcinoma oropharyngeal risk

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Abstract

The oropharyngeal (OP) squamous cell carcinoma (SCC) can result from apoptosis abnormality in cells that DNA cannot be repaired. It is known that the ability to promote apoptosis in damaged cells is variable in humans, once polymorphic genes produce many proteins involved in the process. Proteins like CASP3 and CASP8 are important in apoptosis. Polymorphisms CASP3 IVS1-15G>T and CASP8 -652 6N ins/del are associated to occurrence of different tumors, but their functions in development and clinical-pathological manifestations of OPSCC are unknown. Therefore, the objectives of this study are to identify groups of patients that deserved periodic medical attention for OPSCC treatment.

Key words: oropharyngeal squamous cell carcinoma, genetic polymorphism, risk

Introduction

It is known that individuals with smoke and drink habits for many years have more susceptibility to development oropharyngeal OP squamous cell carcinoma (SCC). The polymorphisms CASP3 IVS1-15G>T and CASP8 -652 6N ins/del were associated with risk of occurrence of different tumors. The variant alleles of referred polymorphisms were associated with less production of respective proteins. The roles of these polymorphisms in OPSCC development, and in the clinical manifestations and in tumor biologic aspects are unknown, which justified our study.

Results and Discussion

The genotypes of 194 patients with OPSCC and 194 controls were performed by real time polymerase chain reaction with DNA from peripheral blood of individuals. The differences between groups were analyzed by qui-square or Fisher’s exact tests and by multiple logistic regressions. Similar frequencies of genotypes CASP3 IVS1-15G>T and CASP8 -652 6N ins/del were observed in patients and controls. Considering only the patients, the wild-type genotype CASP8 6N ins/ins was found more common in women than men (80.0% vs. 45,3%; P= 0.01). The frequency of the CASP8 6N ins/ins or ins/del genotypes was higher in individuals with non-white skin color than white individuals (87,5% vs. 68,5%; P= 0.03). In addition, the wild-type genotype CASP8 6N ins/ins also was more common in patients with tumor histological grade undifferentiated or poorly differentiated than well or moderately differentiated tumors (75,0% vs. 40,9%; P= 0.003).

Conclusions

Our results suggest that the CASP8 -652 6N ins/del polymorphism is an important inherited factor to identify groups of patients that deserved periodic medical attention for OPSCC treatment.

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