Editorial

Dietary Habits, Environmental and Genetic Factors as a Risk of Head and Neck Carcinomas

Squamous cell carcinoma of the head and neck (SCCHN) (oral, oropharyngeal, laryngeal, hypopharyngeal) is a very appropriate tumor model to investigate gene-environment interactions. Oliveira et al presents in this issue of Applied Cancer Research evidences that a diet rich in vegetables, fruit and fish has a protective effect against these malignancies. In contrast, the consumption of foods with high levels of sugar increases the risk of oral and oropharyngeal carcinomas. The influence of diet is complex and difficult to study, due to the variety of foods and their constituents and the changing patterns of consumption.[1,2] However, there is a general consensus that, independently of the constituents of diet, cancer is less frequent in those who have a diet rich in fresh fruit and vegetables. An additional risk factor considered the most important etiologic factor in head and neck carcinomas is tobacco and alcohol consumption. However, since only a fraction of smokers develop cancer, variations in genetic susceptibility may be equally important in the disease etiology. Recent results from case-control studies of several phenotypic and genotypic assays support the hypothesis that genetic susceptibility plays an important role in head and neck tumors etiology. According to this hypothesis, inherited differences in the efficiencies of carcinogens metabolizing, DNA repair, and cell cycle control, or a combination of them may contribute to developing the disease. The identification of individuals presenting polymorphic variations in these systems would have an impact on primary prevention, early detection, and secondary prevention strategies. However, at present, results in literature are conflicting. In addition, a genetic component in head and neck carcinomas is also supported by large families studies demonstrating an increased risk in first degree relatives of SCCHN patients. Additional evidences were provided by the occurrence of multiple primary tumors in SCCHN patients, by the association of family history to early age at the onset of the disease, and by members affected without tobacco and alcohol consumption. The first reports of familial aggregation of head and neck cancer were published over 20 years ago. However, despite the effort devoted to defining head and neck cancer genetic predisposition, only a study showed an association in a single family with melanoma, lung carcinoma, head and neck cancer and germline *TP16* mutation.[3] The possible explanation for the absence of further reports related to familial history or a major predisposition gene in head and neck carcinomas is a lack of accurate information and detailed family history in these patients. A detailed family history must be incorporated as a priority in clinical practice. These findings can directly benefit patients and their families through genetic counseling and early intervention in those who have genetic predisposition.

References

1. Levi F. Cancer prevention: epidemiology and perpectives. Eur J Cancer 1999;35:1046-58.
2. Peto J. Cancer epidemiology in the last century and the next decade. Nature 2001;411:390-5.
3. Yu KK, Zanation AM, Moss JR, Yarbrought WG. Familial head and neck cancer: molecular analysis of a new clinical entity. Laryngoscope 2002;112: 1587-93.

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