

Smoking and Alcohol Consumption Predicts Multiple Head and Neck Cancers

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Abstract : Introduction: It is well known that patients with Head and Neck Cancer (HNC) are at increased risk of subsequent head and neck cancers due to various aetiologies. Aim: We sought to determine the factors contributing to an increased risk of subsequent HNC primaries, and also to evaluate whether Aboriginal patients are at increased risk. Methods: We performed a retrospective cohort analysis of 320 HNC patients from a single centre in Western Australia, identifying 80 Aboriginal patients and 240 non-Aboriginal patients matched on a 1:3 ratio by site, histology, rurality, and age. We collected patient data including smoking and alcohol consumption, tumour and treatment data, and data on subsequent HNC primaries. Results: A subsequent HNC primary was seen in 37 patients (11.6%) overall. There was no significant difference in the rate of second primary HNCs between Aboriginal patients (12.5%) and non-Aboriginal patients (11.2%) ($p=0.408$). Subsequent HNCs, were strongly associated with smoking and alcohol consumption however, with 95% of patients with a second primary being ever-smokers, and 54% of patients with a second primary having a history of excessive alcohol consumption. In the 37 patients with multiple HNC primaries, there were a total of 57 HNCs, with 29 patients having two primaries, six patients having 3 HNC primaries, one patient with four, and one with six. 54 out of the 57 cancers were in ever smokers (94.7%). There were only two multiple HNC primaries in a never smoker, non-drinker, and these cases were of unknown etiology with HPV/p16 status unknown in both cases. In the whole study population, there were 32 HPV-positive HNCs, and 67 p16-positive HNCs, with only two 2nd HNCs in a p16-positive case, giving a rate of 3% in the p16+ population, which is actually much lower than the rate of second primaries seen in the overall population (11.6%), and was highest in the p16-negative population (15.7%). This suggests that p16-positivity is not a strong risk factor for subsequent primaries, and in fact p16-negativity appeared to be associated with increased risk, however this data is limited by the large number of patients without documented p16 status (45.3% overall, 12% for oropharyngeal, and 59.6% for oral cavity primaries had unknown p16 status). Summary: Subsequent HNC primaries were strongly associated with smoking and alcohol excess. Second and later HNC primaries did not appear to occur at increased rates in Aboriginal patients compared with non-Aboriginal patients, and p16-positivity did not predict increased risk, however p16-negativity was associated with an increased risk of subsequent HNCs.

Keywords : head and neck cancer, multiple primaries, aboriginal, p16 status, smoking, alcohol

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