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Homozygous Null Genotype at Glutathione S-transferase *M1* Locus as a Risk Factor for Oral Squamous Cell Carcinoma in Indian Tobacco Users

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ABSTRACT Inter-individual differences in sensitivity to chemical carcinogens may contribute to differences in susceptibility to human cancer subsequent to environmental exposures. It has been reported that polymorphisms in glutathione S-transferase (*GST*) and cytochrome P-450 oxidase (*CYP*) genes are associated with increased risk of tobacco-related cancers in different ethnic populations. In this study, we investigated polymorphisms in *GSTM1*, *GSTT1*, *CYP1A1* and *CYP2E1* genes in 80 oral squamous cell carcinoma (SCC) patients and 67 controls from one Indian population. Prevalence of the *GSTM1* homozygous null genotype was 39 in 80 patients (49%) compared to 18 in 67 controls (27%) [age and sex adjusted OR=1.8, 95% CI=1.0-3.6]. Analyses of data on polymorphisms in *GSTT1*, *CYP1A1* and *CYP2E1* did not reveal significant differences in distribution of genotypes between patient and control groups. Our results confirm that *GSTM1* homozygous null genotype adds to the risk of oral cancer development among tobacco users. But low sample size limited the power to estimate tobacco dose-genotype interactions.

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