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Titel des Beitrags: Genetic polymorphisms in cytochrome P4501B1 and susceptibility to head and neck cancer.

Abstract: Cytochrome P4501B1 (CYP1B1), a polycyclic aromatic hydrocarbon (PAH) metabolizing CYP, is genetically polymorphic in humans and may be involved in the individual susceptibility to chemical-induced cancer. In the present study, genotype and haplotype frequencies of four single nucleotide polymorphisms (SNPs) in CYP1B1 that cause amino acid changes (Arg-Gly at codon 48, Ala-Ser at codon 119, Leu-Val at codon 432 and Asn-Ser at codon 453) were studied in 150 cases suffering from head and neck squamous cell carcinoma (HNSCC) and in an equal number of controls. A significant difference was observed for the distribution of variant genotypes of Arg48Gly (CYP1B1*2) and Ala119Ser (CYP1B1*2) polymorphisms of CYP1B1 in cases versus controls. No significant differences were observed for the distribution of variant genotypes-Leu432Val (CYP1B1*3) and Asn453Ser (CYP1B1*4), respectively. When the four SNPs were analyzed using a haplotype approach, SNPs at codon 48 (Arg48Gly) and codon 119 (Ala119Ser) exhibited complete linkage disequilibrium (LD) in all the cases and controls. Significant differences in the distribution of the two haplotypes (G-T-C-A and G-T-G-A) were observed both in the cases and in controls. Furthermore, our data indicates a several fold increase in risk in the cases who use tobacco (cigarette smoking or tobacco chewing) or alcohol with the variant
genotypes of CYP1B1 (CYP1B1*2 and CYP1B1*3) suggesting the role of gene-environment interaction in the susceptibility to HNSCC.