A case-control study of CYP2E1 (PstI) and CYP1A1 (MspI) polymorphisms in colorectal cancer


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ABSTRACT. Polymorphisms in genes encoding P450 cytochrome enzymes may increase the risk of sporadic colorectal cancer (SCRC). Here we investigated the association between SCRC and CYP2E1 (PstI) and CYP1A1 (MspI) polymorphisms in a case-control study. Moreover, we sought to determine any possible associations between this disease and the sociodemographic factors. We included 273 individuals (74 patients and 199 controls); the gender, age, tobacco usage, and alcohol consumption of the included subjects, and the clinico-histopathological parameters of the tumors, were analyzed. Molecular analyses were performed using PCR-RFLP. The effect of polymorphisms on SCRC development, and the association between this disease and sociodemographic factors
were determined by multiple-logistic regression analyses. The combined genotype was also evaluated. Statistically significant differences between the patients and controls regarding the male gender (odds ratio, OR = 0.19, 95% confidence interval, CI = 0.08-0.46; P ≤ 0.05) and age ≥44 years (median = 44; OR = 96.84, 95%CI = 21.78-430.49; P ≤ 0.05) were observed. The evaluated polymorphisms were not associated with SCRC (PstI-CYP2E1: OR = 0.93, 95%CI = 0.30-2.85; P = 0.897; MspI-CYP1A1: OR = 0.75, 95%CI = 0.35-1.61; P = 0.463); the combined genotypes were not associated with the risk of disease. Thus, individuals aged ≥44 years are more sensitive to SCRC, while men are less susceptible. Additionally, polymorphisms in CYP2E1 (PstI) and CYP1A1 (MspI) were not associated with SCRC in the evaluated Brazilian population.

**Key words:** Colorectal neoplasms; Cytochrome P-450 CYP2E1; Alcohol; Cytochrome P-450 CYP1A1; Genetic polymorphisms; Smoking