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*CYP2E1 Rsa*I and 96-bp insertion genetic polymorphisms associated with risk for colorectal cancer

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ABSTRACT. We investigated a possible association between alcoholism, cigarette smoking, obesity and *CYP2E1 Rsa*I and 96-bp insertion genetic polymorphisms with risk for colorectal cancer (CRC). Patients with CRC (70 women and 61 men) were matched for gender and age to 206 healthy controls. The mean age of the two groups was 62 years. Meat intake, cigarette smoking and alcohol drinking were assessed using a specific frequency questionnaire. The body mass index was also calculated. DNA was extracted from peripheral blood; *Rsa*I polymorphism genotypes were evaluated by PCR-RFLP and 96-bp insertion genetic polymorphisms were evaluated by specific primers. The distributions of *CYP2E1 Rsa*I c1/c1, c1/c2 and c2/c2 genotypes were 90.2, 9.2 and 0.6%, respectively, in controls and 83.9, 13.7 and 2.4% in CRC cases. Allele c2 was associated with increased risk for CRC [odds ratio (OR) = 1.88, 95% confidence interval (95%CI) = 1.02-3.45]. The *CYP2E1 Rsa*I c2/c2 genotype was associated with an increased risk for rectal cancer (OR = 3.23, 95%CI = 1.26-9.03). The 96-bp insertion was slightly more frequent in the CRC group (9.3 *vs* 11.4%, P = 0.19), especially in females (6.4 *vs* 11.5%, P = 0.34). Smoking, alcohol drinking or high intake of red meat and *CYP2E1* polymorphisms were

not associated with increased risk for CRC. The 96-bp insertion was marginally more frequent (P = 0.07) in undernourished CRC subjects. We concluded that the risk for CRC is higher among individuals with allele c2. The *CYP2E1 Rsa*I c2/c2 genotype was associated with an increased risk for rectal cancer.

Key words: *CYP2E1*; Polymorphism; Colorectal cancer

