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MLH1 and *XRCC1* polymorphisms in Mexican patients with colorectal cancer

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ABSTRACT. DNA repair proteins maintain DNA integrity; polymorphisms in genes coding for these proteins can increase susceptibility to colorectal cancer (CRC) development. We analyzed a possible association of *MLH1* -93G>A and 655A>G and *XRCC1* Arg194Trp and Arg399Gln polymorphisms with CRC in Mexican patients. Genomic DNA samples were obtained from peripheral blood of 108 individuals with CRC (study group) at diagnosis and 120 blood donors (control group) from Western Mexico; both groups

were mestizos. The polymorphisms were detected by PCR-RFLP. Association was estimated by calculating the odds ratio (OR). We found that the *MLH1* and *XRCC1* polymorphisms were in Hardy-Weinberg equilibrium. The *MLH1* 655A>G polymorphism in the 655G allele was associated with a 2-fold increase risk for CRC (OR = 2.04 and 95% confidence interval (95%CI) = 1.12-3.69; P < 0.01), while the *MLH1* -93G>A polymorphism allele was associated with a protective effect (OR = 0.60, 95%CI = 0.40-0.89; P = 0.01 in the -93A allele and OR = 0.32, 95%CI = 0.13-0.79; P = 0.01 in the AA genotype). The *XRCC1* Arg194Trp and Arg399Gln polymorphisms did not show any significant associations. In conclusion, we found that *MLH1* -93G>A and 655A>G polymorphisms are associated with CRC in Mexican patients.

Key words: *MLH1* gene; *XRCC1* gene; Colorectal cancer; Mexican population

