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XRCC1 rs25487 polymorphism is associated with lung cancer risk in epidemiologically susceptible Chinese people

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ABSTRACT. Base excision repair (BER) plays an important role in maintaining genome integrity and anti-cancer drug resistance. Single nucleotide polymorphisms (SNPs) in BER genes were detected in 500 lung cancer patients and 500 cancer-free controls. A logistic regression model was applied to analyze the relationship between lung cancer susceptibility and BER SNPs coupled with a wide range of epidemiological factors in a Chinese population. SNPs including rs25487 in the X-ray repair cross-complementing group 1 gene, rs1052133 in the 8-oxoguanine DNA glycosylase gene, and rs1136410 in the poly (ADP-ribose) polymerase 1 gene were identified. Multivariate analysis showed that the rs25487-AG genotype was associated with a higher incidence of lung cancer compared with the GG genotype. The rs25487 SNP was associated with the pathological distribution of lung cancer. Moreover, rs1052133-GG was associated with early age of lung cancer onset compared with the CC genotype. Our data demonstrated that the SNPs rs25487 and rs1052133 are risk factors for lung cancer in epidemiologically susceptible Chinese people.

Key words: Base excision repair; Lung cancer; 8-Oxoguanine DNA glycosylase rs1052133; poly(ADP-ribose) polymerase 1 rs1136410; Single nucleotide polymorphisms; X-ray repair cross-complementing group 1 rs25487

