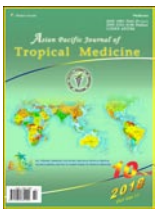

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Polymorphisms in *XPB* and *XPG* subcomplexes of TFIIH is associated with lung cancer risk in a Chinese population: A case−control study

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ABSTRACT **Objective:** The transcription factor IIH (TFIIH) helicases *XPB* and *XPD* are responsible for opening the DNA strand around the lesion site and endonuclease *XPG* cleaves the damaged DNA strand on the 3′ side during nucleotide excision repair (NER). Polymorphisms in these three genes that affect DNA repair capacity may contribute to susceptibility of lung cancer. In this study, our objective is to conduct a case-control study of 100 Chinese patients with lung cancer and 100 cancer-free age and sex matched controls to analyse associations between these SNPs and lung cancer susceptibility. **Methods:** In this hospital-based case-control study, we genotyped 7 SNPs of *XPB*, *XPD* and *XPG* using matrix assisted laser desorption ionisation-time of flight mass spectrometry method (MALDI-TOF) to explore the association with lung cancer risk. To estimate the relative risk of lung cancer associated with SNP genotype, odds ratios (OR) and 95.0% confidence intervals (95.0% *CI*) were obtained from unconditional multinomial logistic regression models without and with adjustment for potential confounders including age, gender, cigarette smoking and alcohol consumption. **Results:** The results showed that individuals carrying *XPB* rs4150434 GA or AA genotype (OR per GA genotype, 1.997; 95.0% *CI*: 1.031-3.871; *P*=0.039; OR per AA genotype, 2.435; 95.0% *CI*: 1.037-5.718; *P*=0.037), and this association was also find in nondrinkers (OR per GA genotype, 2.477; 95.0% *CI*: 1.128-5.440; *P*=0.022). Individuals carrying *XPG* rs2094258 AA genotype had an increased risk of lung cancer (OR per AA genotype, 3.020; 95.0% *CI*: 1.015-8.980; *P*=0.040) compared with individuals with the GG genotype, especially in nondrinkers (OR per AA genotype, 4.020; 95.0% *CI*: 1.211-13.339; *P*=0.017). In addition, we found that *XPG* rs17655 CG or GG genotype associated with decreased lung cancer risk in drinkers (OR per *XPG* rs17655 CG genotype, 0.238; 95.0% *CI*: 0.061~0.925; *P*=0.034; OR per *XPG* rs17655 GG genotype, 0.l39; 95.0% *CI*: 0.021-0.938; *P*=0.032). Haplotype analysis of all 7 SNPs was also conducted. We found that the haplotype of *XPB* (rs4150441, G>A; rs4150434, G>A) GA and the haplotype of *XPG* (rs2094258, G>A; rs4771436, T>G; rs17655, C>G) ATC had an increased association with lung cancer. **Conclusions:** These findings suggest an important role of *XPB* rs4150434 and *XPG* rs17655 polymorphisms for a biomarker for lung cancer risk among the Chinese population.

Keywords: *XPB*; *XPD*; *XPG*; SNP; Lung cancer

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