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Vitamin D receptor genetic variants are associated with susceptibility of gallbladder adenocarcinoma in a Chinese cohort

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ABSTRACT. The aim of this study was to test for the possible association between vitamin D receptor (VDR) genetic variants and susceptibility to gallbladder cancer (GBC). A total of 291 GBC cases were recruited and 396 gender- and age-matched healthy volunteers were enrolled as controls. The *VDR* gene polymorphisms were determined in all subjects. The genotype and the allele frequencies of *Apa*I, *Bsm*I, and *Taq*I polymorphisms were not significantly different between GBC subjects and controls. However, the genotype and allele frequencies of the *Fok*I C>T polymorphism were significantly different between GBC subjects and controls. The *Fok*I TT genotype was in markedly higher frequency in GBC subjects compared to controls (38.14 *vs* 22.73%, $P < 0.001$). Using TT as the reference genotype, multivariate logistic regression analysis showed that CC genotype carriers had a higher risk of GBC (adjusted odds ratio (OR) = 3.423, adjusted $P = 0.001$) with adjustment for age, gender, smoking status, alcohol use, and gallstone presence, as well as the serum 1,25(OH)2D level. Carriers of the CT genotype also had a higher risk of GBC (adjusted OR = 1.992, adjusted

P = 0.003). Multivariate logistic regression analysis did not reveal any association between the *Apa*I, *Bsm*I, and *Taq*I polymorphisms and GBC risk (all P > 0.05).

Key words: Vitamin D receptor; Gallbladder cancer; Susceptibility

