Vitamin D receptor gene FokI, TaqI, BsmI, and ApaI polymorphisms and susceptibility to pulmonary tuberculosis: a meta-analysis

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ABSTRACT. The aim of this study was to determine whether vitamin D receptor (VDR) genetic polymorphisms are associated with the susceptibility to pulmonary tuberculosis (PTB). MEDLINE and Embase databases and manual literature searches were used. A meta-analysis was conducted on the associations between the VDR FokI, TaqI, BsmI, and ApaI polymorphisms and PTB susceptibility. A total of 16 studies comprising 3231 patients and 3670 controls met the study inclusion criteria, consisting of 14 studies on the VDR FokI polymorphism, 13 on the VDR TaqI polymorphism, 8 on the VDR BsmI polymorphism, and 5 on the VDR ApaI polymorphism. Meta-analysis of the VDR FokI polymorphism showed no association between PTB and the f allele of the VDR FokI polymorphism (long variant) in all subjects (OR = 1.070, 95%CI = 0.979-1.169, P = 0.134). In contrast, after stratification by ethnicity, meta-analysis indicated that the VDR FokI F allele (short variant) was associated with PTB risk in an East Asian population (OR = 1.507, 95%CI = 1.192-1.906, P = 0.001). Meta-analysis revealed no association between PTB susceptibility and the VDR TaqI t allele in all study subjects (OR = 0.986, 95%CI = 0.839-1.159, P = 0.866)
or in individual ethnic populations. Furthermore, a risk of PTB was not associated with the BsmI and Apal polymorphisms. This meta-analysis suggested that the VDR FokI polymorphism is associated with a susceptibility to PTB in East Asians.

**Key words:** Vitamin D receptor; Meta-analysis; Polymorphism; Pulmonary tuberculosis