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Polymorphisms in the vitamin D receptor gene and risk of autoimmune thyroid diseases: a meta-analysis.

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Abstract

Environmental and genetic factors are thought to be involved in the pathogenesis of autoimmune thyroid diseases (AITD), which include Graves' disease, Hashimoto's thyroiditis. Polymorphisms of vitamin D receptor (VDR) were implicated in AITDs risk. To date, many studies have evaluated the association between a functional polymorphism in the VDR gene and AITDs risk; however, the result is still ambiguous and inconclusive. To address the association of VDR gene FokI (rs10735810), TaqI (rs731236), BsmI (rs1544410), and ApaI (rs7975232) polymorphisms with AITD risk by meta-analysis. By searching the relevant literature, a total of eight studies were identified and meta-analyzed. HWE for each study are checked. Crude odds ratios (OR) with 95 % confidence intervals (CIs) were used to assess the strength of association in the allele polymorphism, codominant model, dominant model, and recessive model. The result indicates that the BsmI or TaqI polymorphisms is significantly associated with AITD risk (OR = 0.801 95 % CI 0.705, 0.910, Pz = 0.001 for B vs. b; OR = 0.854, 95 % CI 0.757, 0.963, Pz = 0.010 for t vs. T), while the ApaI or FokI polymorphism do not. In the subgroup analysis in Europeans, the decreased risk of AITD remained for the B or t variant. This gene-based analysis indicates that, based on current evidence from published studies, the cumulative effect of BsmI or TaqI polymorphisms in VDR is significantly associated with AITD.

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