

Abstract

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Vitamin D receptor polymorphisms and the risk of cutaneous melanoma: a systematic review and meta-analysis.

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OBJECTIVE: It has been hypothesized that polymorphisms in the vitamin D receptor (VDR) gene affect the risk of developing melanoma. However, results often are conflicting, and no meta-analysis has been performed to date on published data.

METHODS: Six studies (cases, 2152; controls, 2410) that investigated the association between 5 VDR polymorphisms (TaqI, FokI, BsmI, EcoRV, and Cdx2) and the risk of melanoma were retrieved and analyzed. The model-free approach was applied to meta-analyze these molecular association studies.

RESULTS: Available data suggested a significant association between the BsmI VDR polymorphism and melanoma risk (pooled odds ratio [OR], 1.30; 95% confidence interval [CI], 1.11-1.53; $P = .002$; heterogeneity Cochran Q test, $P > .1$), and the population-attributable risk was 9.2%. In contrast, the FokI polymorphism did not appear to be associated with such risk (OR, 1.09; 95% CI, 0.99-1.21; $P = .07$; heterogeneity Cochran Q test, $P > .1$). For the TaqI and the EcoRV polymorphisms, significant between-study heterogeneity did not support genotype data pooling. Only 1 study investigated the Cdx2 variant, and the findings were negative.

CONCLUSION: Current evidence is in favor of an association between 1 VDR gene polymorphism (BsmI) and the risk of developing melanoma. The current findings prompt further investigation on this subject and indirectly support the hypothesis that sun exposure may have an antimelanoma effect through activation of the vitamin D system.

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