Vitamin D receptor gene polymorphisms and colorectal cancer risk: A systematic meta-analysis.


Source

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Abstract

AIM:

To investigate the relationship between polymorphisms present in the vitamin D receptor (VDR) gene and colorectal cancer risk, a systematic meta-analysis of population-based studies was performed.

METHODS:

A total of 38 relevant reports published between January 1990 and August 2010 were identified, of which only 23 qualified for this meta-analysis based on our selection criteria. Five polymorphic variants of the VDR gene, including Cdx-2 (intron 1e) and FokI (exon 2) present in the 5’ region of the gene, and BsmI (intron 8), Apal (intron 8), and TaqI (exon 9) sites present in the 3’ untranslated region (UTR), were evaluated for possible associations with colorectal cancer risk. Review manager 4.2 was used to perform statistical analyses.

RESULTS:

In the meta-analysis performed, only the BsmI polymorphism was found to be associated with colorectal cancer risk. In particular, the BsmI B genotype was found to be related to an overall decrease in the risk for colorectal cancer [BB vs bb: odds ratio (OR) = 0.87, 95% CI: 0.80-0.94, P = 3 × 10(-4); BB vs Bb + bb: OR = 0.90, 95% CI: 0.84-0.97, P = 5 × 10(-4)]. Moreover, in subgroup analyses, the BsmI B genotype was significantly associated with colon cancer, and not rectal cancer. An absence of between-study heterogeneity was also observed.

CONCLUSION:
A meta-analysis of 23 published studies identified the BsmI polymorphism of the VDR gene to be associated with an increased risk of colon cancer.

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