Vascular endothelial growth factor polymorphisms and clinical outcome in colorectal cancer patients treated with irinotecan-based chemotherapy and bevacizumab.

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Source

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Abstract

The aim of the study was to evaluate the association of vascular endothelial growth factor (VEGF) genotypes with treatment efficacy in a randomized trial. This study compared two chemotherapy regimens (FOLFIRI versus XELIRI) combined with bevacizumab, as first-line treatment for metastatic colorectal cancer. DNA was extracted from blood samples of 173 patients participating in the trial. Genotyping was performed for selected SNPs (VEGF-1154, +936, -634, -2578 and -1498). All candidate genotypes were evaluated for associations with overall survival (OS), progression-free survival (PFS) and response rate (RR). There were no significant differences with respect to the distribution of genotypes in the treatment groups. The VEGF-1154 GG genotype was more frequent in patients not responding to treatment compared with responders (65.5 versus 39.8%, P=0.032). Furthermore, the VEGF-1154 GG genotype was associated with inferior median OS compared with GA (hazards ratio=1.68; 95% confidence interval: 1.10-2.57; P=0.016) or with the alternative genotypes (GA and AA) combined (hazards ratio=1.62; 95% confidence interval: 1.09-2.40; P=0.017). In multivariate analysis, the VEGF-1154 GG genotype remained a significant adverse factor for OS. Our results support the potential predictive ability of VEGF genotypes in patients with metastatic colorectal cancer receiving irinotecan-based chemotherapy plus bevacizumab, in terms of RR and OS. However, current results should be validated prospectively, in larger cohorts.The Pharmacogenomics Journal advance online publication, 16 August 2011; doi:10.1038/tpj.2011.37.