

Genetic Variation Associated With Inflammation May Help Predict Colorectal Cancer Survival

December 12, 2011

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Inflammation is a risk factor for the development and progression of colorectal cancer. Although the use of anti-inflammatory medications has been associated with better survival for patients with colorectal cancers, little is known about the genetic contribution to inflammation on disease prognosis.

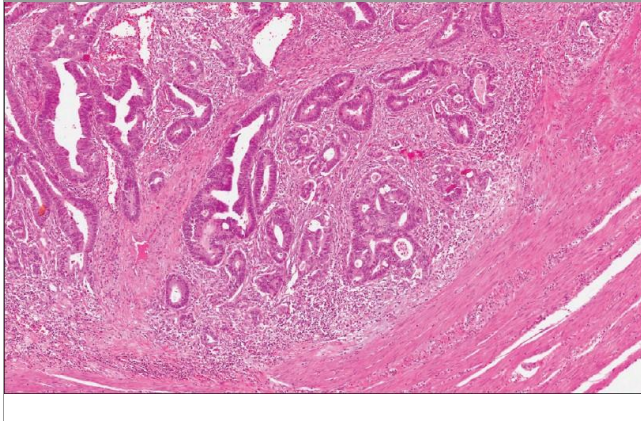
Recently, Anna Coghill and colleagues from the Public Health Sciences Division were some of the first to investigate the effect of genetic variation in genes that regulate inflammation on colorectal cancer survival. Specifically, the group genotyped single-nucleotide polymorphisms (SNPs) in 5 genes that help regulate key inflammatory pathways, the prostaglandin synthesis pathway and the NF κ B pathway, among 426 patients with a primary, invasive colorectal cancer identified from the Puget Sound Surveillance Epidemiology and End Results Registry.

Of the 5 genes tested (*PTGS-1* (*COX-1*), *PTG-2* (*COX-2*), *MRP4*, *NF κ B*, and *I κ BK β*), variation in two genes was significantly associated with disease prognosis. Three *PTGS-1* (*COX-1*) SNPs were associated with significantly increased risk of colorectal cancer mortality, while one variant was associated with an approximately 50% lower risk of death due to colorectal cancer.

Two *I κ BK β* variants were also identified as being significantly associated with colorectal cancer survival. The findings may be due, in part, to the more advanced stage of disease at diagnosis observed among patients with certain genetic variants. Future research is also needed to determine whether the identified variants alter protein expression in these crucial inflammatory pathways.

The identified SNPs provide an excellent beginning for further research to better understand how the inherited variation in inflammation-related genes could help refine the prediction of patient outcomes and aid the identification of new targets for therapy.

[Coghill AE, Newcomb PA, Poole EM, Hutter CM, Makar KW, Duggan D, Potter JD, Ulrich CM.](#) 2011. Genetic variation in inflammatory pathways is related to colorectal cancer survival. *Clinical Cancer Research*, 17(22):7139-7147.



www.jpathinformatics.org, Cheng (2011)

Histopathological section of colon adenocarcinoma with inflammation