Genetic variants associated with a risk of Crohn's disease

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The likelihood of three genetic variants being associated with a risk of Crohn disease is lower than many previous studies indicated, states a research article in *CMAJ* (*Canadian Medical Association Journal*).

Crohn disease and ulcerative colitis, closely related inflammatory bowel diseases, affect an estimated 2.2 million people in Europe and 1.4 million people in North America.

The study, was conducted to estimate the likelihood that three particular genetic variants in the NOD2/CARD15 gene are related to the risk Crohn disease in the general population.

The population-based study genotyped 43 596 Danish people followed between January 1976 and July 2007. Using a logistic regression model (used to predict the probability of an occurrence) physicians estimated the risk of Crohn disease in the general population.

"Surprisingly, we found no statistically significant association between NOD2/CARD15 genetic variants and Crohn disease in either of the two general population studies that we analyzed, which suggests a low penetrance of the genetic variants in the European general population," write Dr. Børge G. Nordestgaard, Herlev Hospital, University of Copenhagen, Denmark and coauthors. (Penetrance is the degree to which the gene causes the disease.)

The authors conclude that the penetrance of NO2D/CARD15 genetic

variants in relation to risk of Crohn for the Danish population was lower than might have been expected from previous European case-control studies. This should be considered when advising healthy individuals in whom these genetic variants are discovered.

In a related commentary, Dr. Katherine A. Siminovitch and coauthors write that these research findings reinforce the fact that common diseases have many causes and that in these diseases, the effect of any single gene variant on risk is usually small. This underscores the current challenge in realizing the potential of personalized medicine (use of an individual's specific information to select or optimize preventive care and therapy).

More information:
www.cmaj.ca/cgi/doi/10.1503/cmaj.090684
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