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Genetic risk factors identified for coronary artery disease, heart attack

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Coronary artery disease (CAD) is the single largest cause of death in adults in the United States. Until recently, the genetic basis of CAD has been largely unknown, with just a few proven genes (typically genes for cholesterol disorders) accounting for very little of the disease in the population. Now, a new study from researchers at the University of Pennsylvania School of Medicine shows that certain genetic profiles increase risk of coronary artery disease (CAD) while others uniquely increase risk of heart attacks in those with CAD.

The findings, published online first today and in an upcoming edition of *The* Lancet, are the results of the analysis of two genome-wide association studies (GWAS) -- an examination of all or most of the genes (the genome) of different individuals to identify common genetic factors that influence disease.

Lead author Muredach P. Reilly, MBBCH, MSCE, associate professor of Medicine and Pharmacology at Penn, and colleagues compared 12,393 individuals with CAD disorder with 7,383 controls who did not have CAD to identify loci that predispose to angiographic CAD. To identify loci that predispose to heart attacks, they compared 5,783 patients who had angiographic CAD and had a heart attack with 3,644 who had angiographic CAD but no heart attack.

The researchers identified a new locus, ADAMTS7 (a gene already implicated in arthritis), which increased the risk of developing CAD. In the heart-attack comparison, the authors found a new association at the

ABO blood group locus. They found that the same gene that codes for the enzyme behind people being blood group O offered protection against heart attacks.

Provided by University of Pennsylvania School of Medicine