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News Release

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VA study on cholesterol genetics could lead to new treatments for heart disease, diabetes

WASHINGTON — In the U.S. Department of Veterans Affairs' (VA) drive to help improve lives of Veterans through health care discovery and innovation, a team led by VA researchers recently identified three genetic mutations that govern cholesterol levels, which could lead to the development of new drugs to treat cardiovascular disease and diabetes.

Detailed results of the study can be found in the Oct. 1 issue of Nature Genetics, a scientific journal.

"This is fantastic news, not just for Veterans, but for all Americans suffering from these diseases," said VA Secretary Robert Wilkie. "VA researchers have been improving the lives of Veterans and all Americans through health care discovery and innovation for decades. Their groundbreaking research has resulted in three Nobel prizes and numerous other national and international honors."

Using data from VA's Million Veteran Program (MVP), the researchers found that three genes — PDE3B, PCSK9 and ANGPTL4 — could be targets for treatment of heart disease, abdominal aortic aneurysm and diabetes, respectively. VA research showed that those with specific mutations to the genes had better cholesterol and triglyceride levels than those without the mutations.

The PDE3B mutation appears to protect against heart disease. A mutation in PCSK9 seems to decrease the risk not only of heart disease, but also abdominal aortic aneurysm — a condition in which the aorta is enlarged, which could lead it to rupture and cause life-threatening bleeding. The ANGPTL4 mutation was linked to lower risk of Type 2 diabetes. The research was supported by VA, the National Institutes of Health and Stanford's Department of Medicine.

MVP is a national, voluntary research program funded by VA's Office of Research and Development. MVP partners with Veterans receiving care in the Veterans Health Administration to study how genes affect health. As of late September 2018, MVP had enrolled more than 700,000 Veterans. It is already one of the world's largest databases of health and genomic information.

The Nature Genetics publication is one of the first major papers describing scientific findings from MVP. The publication highlights the power of researchers having access to data from large numbers of individuals. In this instance, researchers were able to identify several novel genetic factors that affect people's blood lipid [cholesterol and triglyceride] levels. Such findings may lead to new approaches to diagnose people at risk for cardiovascular disease, as well as identify candidate therapeutic targets.

To learn more about VA research, including MVP, visit www.research.va.gov.

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