Genetics for personalized coronary heart disease treatment

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Identifying a single, common variation in a person's genetic information improves prediction of his or her risk of a heart attack or other heart disease events and thus, choice of the best treatment accordingly, said researchers at Baylor College of Medicine in Houston.

These findings are being presented today at the American Heart Association's Scientific Sessions in New Orleans.

"This DNA variation at 9p21 chromosomal region is not a mutation; it is a genetic variant," said Ariel Brautbar, clinical postdoctoral fellow in molecular and human genetics at BCM and lead author of the study, which is one of the presentations designated "Best of Sessions" at the annual American Heart Association meeting.

Brautbar and the Atherosclerosis Risk in Communities researchers followed 10,000 people already taking part in this large study of middle-aged Americans designed to investigate the causes and natural history of atherosclerosis.

Participants were already categorized, based on traditional risk factors, as low, intermediate, or high risk for heart disease events. Low risk was defined as having a less than 10 percent chance of having coronary heart disease in the next 10 years. People with a 10 percent to 20 percent chance in the next decade were considered intermediate risk. Anyone with a risk of 20 percent or greater is considered high risk. However, some people in the 5 percent to 10 percent risk range seem to have more

than "low risk."

In Brautbar's study, many of those who have the genetic variation at 9p21 had a higher risk than previously thought. Nearly 20 percent in the 5 percent to 10 percent (low risk) range, and more than 16 percent in the 10 percent to 20 percent (intermediate risk) range had to be recategorized.

"It significantly improved our risk prediction," said Christie Ballantyne, chief of atherosclerosis and vascular medicine and professor of medicine at BCM. "Since many people's risk categories changed, the optimal treatment for these individuals had to be reevaluated."

Those already at intermediate risk were most affected by these results, Brautbar added.

"A person at high risk will be treated aggressively, regardless of whether he or she has this variation. A low-risk person with good health won't be treated differently either," he said. "However, someone in the intermediate risk group could be moved into a higher or lower risk category, depending on whether he or she has the genetic variant. This, in turn, could affect how he or she is treated."

The test to identify whether there is a variation at 9p21 involves taking blood or swabbing the inside of a person's cheek to obtain DNA.

"This study shows us that each person's particular genetic information may play a role in personalizing preventative treatment for that individual," Brautbar said.

Source: Baylor College of Medicine