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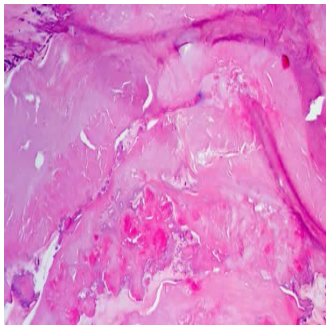
LDL-C Associated With Narrowing Of Aortic Valve



According to a new study published in *JAMA*, genetic predisposition to elevated low-density lipoprotein cholesterol (LDL-C) is associated with narrowing of the aortic valve. The study was conducted with 35,000 participants and the findings show a causal association between LDL-C and aortic valve disease. The findings of the study are to be presented at the Canadian Cardiovascular Congress.

Aortic valve disease is a common form of heart valve disease both in Europe and North America. It is also the most common indication for valve replacement. However, despite its prevalence, there are currently no known medical treatments that could possibly stop or slow the progression of the disease.

Observational studies show that plasma LDL-C is associated with aortic stenosis. However, randomised trials with cholesterol lowering therapies to date have failed to demonstrate reduced disease progression in individuals with established valve disease. The link between LDL-C and aortic valve disease could potentially lead to its prevention and treatment.

Based on the theory that genetic variation could be used as an effective tool to distinguish potentially causal from non-causal biomarkers, J. Gustav Smith, MD, and colleagues at Lund University in Sweden used the Mendelian randomisation approach to evaluate whether weighted genetic risk scores (GRSs) were associated with aortic valve disease. Community-based cohorts participating in the CHARGE consortium were included in the study. This included the Framingham Heart Study, the Multi-Ethnic Study of Atherosclerosis, the Age Gene/Environment Study–Reykjavik and the Malmö Diet and Cancer Study.

Aortic valve calcium was quantified by computed tomography, and prevalent and new diagnoses of aortic stenosis and aortic valve replacement were identified by record linkage with nationwide registers on hospitalisations and causes of death.

The study showed that in the subgroup of the MDCS where lipid fractions were measured, baseline LDL-C, but not high-density lipoprotein cholesterol (HDL-C) or triglycerides (TG) levels, was significantly associated with new aortic stenosis. The findings also showed that LDL-C GRS, but not HDL-C or TG GRS, was significantly associated with presence of aortic valve calcium in CHARGE and with new aortic stenosis in MDCS.

“Our findings link a genetically mediated increase in plasma LDL-C with early subclinical valve disease, as measured by aortic valve calcium, and incident clinical aortic stenosis, providing supportive evidence for a causal role of LDL-C in the development of aortic stenosis,” the authors write. “These data suggest that, in addition to the established risks for myocardial infarction and other vascular diseases, increases in LDL-C are also associated with increased risk for aortic stenosis. Whether earlier intervention to reduce LDL-C could prevent aortic valve disease merits further investigation.”

Source: JAMA

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Published on : Mon, 27 Oct 2014