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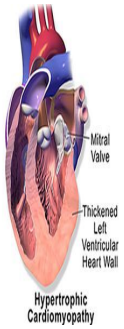
Environmental Stress May Cause Hypertrophic Cardiomyopathy



According to a new study, researchers have found that in addition to gene mutations, environmental stress also plays a key role in the development of the heart disease, hypertrophic cardiomyopathy. This is a heritable and potentially fatal heart disease that causes irregular heartbeats, heart valve problems, heart failure and in some rare cases, even sudden cardiac death in young people.

As many as 500,000 people in the US suffer from hypertrophic cardiomyopathy. However, some people who carry gene mutations that cause the disease never experience any symptoms.

Led by senior author Sakthivel Sadayappan, PhD, MBA, of Loyola University Chicago Stritch School of Medicine, this new study published in the *Journal of Molecular and Cellular Cardiology* explains why.

Hypertrophic cardiomyopathy is the leading cause of heart-related sudden death in people under the age of 30. Over 1400 gene mutations are linked to the disease. Those individuals who have one parent suffering from this disease have a 50 percent chance of inheriting it. The risk is higher among people from India and other South Asian countries.

Dr. Sadayappan and his team studied the effect of environmental stress on mice that carried mutations that cause hypertrophic cardiomyopathy, and performed a procedure that mimics high blood pressure.

The findings of the study suggest that carriers of hypertrophic cardiomyopathy mutations, who have no symptoms, are at a greater risk of developing the disease from environmental stressors such as high blood pressure, diabetes and alcohol use. This occurs mainly because of the compounding effects of stress and insufficient levels of cMyBP-C.

In an accompanying editorial, Jennifer Strander, MD, PhD of the Medical College of Wisconsin, says that these findings are unexpected. She also writes that "stress may be a new modifier of the disease process and it is definitely worth another look."

The study was funded by grants from the National Heart, Lung and Blood Institute and the American Heart Association.

Source: Loyola University Health System

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