

Researchers link Kawasaki Disease in childhood with increased risk of adult heart disease

July 17 2012

Cedars-Sinai researchers have linked Kawasaki Disease, a serious childhood illness that causes inflammation of blood vessels throughout the body, with early-onset and accelerated atherosclerosis, a leading cause of heart disease in adults.

In a study published in the August 2012 print edition of *Arteriosclerosis, Thrombosis, and Vascular Biology*, an American Heart Association peer-reviewed medical journal, a team of researchers showed how [Kawasaki Disease](#) in young mice predisposed them to develop accelerated atherosclerosis, often called hardening of the arteries, in young adulthood. The study also suggests that aggressive early treatment of the blood vessel inflammation caused by Kawasaki Disease may reduce the future risk of developing accelerated atherosclerosis. Up to 25 percent of children with Kawasaki Disease will develop inflammation of the coronary arteries, making it the leading cause of acquired [heart disease](#) among children in developed countries.

"Heart disease is the leading cause of death in this country and this study suggests that adult cardiovascular diseases likely start during childhood and that Kawasaki Disease may play a role in the childhood origin of adult heart disease," said Moshe Arditi, MD, executive vice chair of research in Cedars-Sinai's Department of Pediatrics in the Maxine Dunitz Children's Health Center and director of the Division of Pediatric Infectious Diseases and Immunology. "By recognizing the connection

between this vascular inflammatory disease and hardening of the arteries in young adults, physicians will be better prepared to provide preventive care to these vulnerable patients."

Arditi said the study's findings also may have implications for children with Kawasaki Disease in that they may need to be closely monitored for future development of early-onset atherosclerosis. Also, doctors treating children who have had Kawasaki Disease should closely monitor other known cardiovascular disease risk factors such as obesity, high blood pressure, high cholesterol and smoking, Arditi said.

The study is available online at the journal's website.

Kawasaki Disease is diagnosed in approximately 5,000 U.S. children every year, predominantly affecting children younger than five. Boys are more likely than girls to acquire Kawasaki Disease, which starts with a sudden, persistent fever and causes swollen hands and feet, red eyes and body rash. Scientists suspect Kawasaki Disease is the body's immune reaction to a virus that has yet to be identified.

Atherosclerosis occurs when fat, cholesterol, and other substances build up in the walls of arteries and form hard structures called plaques. Over the course of years, plaque buildup makes it harder for blood to flow because the plaque narrows arteries and makes them stiffer. When pieces of plaque break off and move to smaller vessels, they can cause stroke, heart attack or pulmonary embolism.

In the study, which was funded with a grant from the National Institute of Allergy and Infectious Diseases, mice with Kawasaki Disease were fed a high-fat diet and then compared to mice that did not have Kawasaki Disease but did eat the same high-fat diet. The Kawasaki mice developed significantly more atherosclerotic plaque at a younger age.

"This study suggests that timely diagnosis and aggressive initial treatment of the vascular inflammation may be important in preventing this potentially serious future complication," said co-author Prediman K. Shah, MD, director of cardiology, director of the and the Shapell and Webb Family Chair in Clinical Cardiology at the Cedars-Sinai Heart Institute.

Provided by Cedars-Sinai Medical Center

Citation: Researchers link Kawasaki Disease in childhood with increased risk of adult heart disease (2012, July 17) retrieved 25 April 2024 from <https://medicalxpress.com/news/2012-07-link-kawasaki-disease-childhood-adult.html>

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