

Cholesterol levels in young adults predict risk of future heart disease

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(PhysOrg.com) -- Young people with even modestly elevated cholesterol levels are more likely to develop coronary artery calcium and atherosclerosis later in life, according to a study by UCSF researchers.

The findings indicate that [cholesterol levels](#) found in the majority of young adults in their 20s and 30s are associated with damage to coronary arteries, which can accumulate over time and persist into middle age.

Findings were published August 2, 2010 in the [Annals of Internal Medicine](#) and available online at archinte.ama-assn.org/ .

The findings refute the common assumption that non-optimal cholesterol levels are insignificant during young adulthood and suggest a stronger emphasis on early lifestyle intervention, according to Mark J. Pletcher, MD, MPH, who is first author on the study.

“We don’t usually worry too much about heart disease risk until a person is in middle age because it’s rare to have a heart attack in young adulthood,” said Pletcher, who is an associate professor of Epidemiology & Biostatistics and of Medicine at UCSF. “However, our evidence shows that young adulthood is an important time because lasting damage already starts to accumulate at this age.”

“In order to prevent heart disease and stroke more effectively, we should be thinking about cholesterol at a younger age,” he said.

The study followed 3,258 men and women aged 18 to 30 for two decades with repeated measurements of low- and high-density lipoprotein (LDL and HDL) cholesterol and triglycerides (fat molecules in the blood). [Coronary artery calcium](#), which is indicative of atherosclerotic plaque buildup in the coronary arteries, was measured by a CT scan at the end of follow-up when participants were about 45 years old.

Researchers found that individuals exposed to higher levels of LDL (“bad”) cholesterol or lower levels of HDL (“good”) cholesterol during young adulthood were more likely to develop coronary calcium. For example, 44 percent of study participants with an average LDL cholesterol level greater than 160 mg/dL had calcifications in their coronary arteries two decades later, compared to only eight percent of participants with optimal LDL levels less than 70 mg/dL.

In fact, even modest rises in LDL - as low as 100-129 mg/dL - were associated with a significantly higher risk of atherosclerosis, the study found. The majority of young adults studied (65 percent) had LDL levels higher than 100 mg/dL.

Participants were part of the Coronary Artery Risk Development in Young Adults study (known as CARDIA), which began in 1985 and involved healthy, young men and women of various backgrounds from four American cities. The study population was 47 percent African American and 56 percent female.

Atherosclerosis, or blockages in the coronary artery from cholesterol and plaque, can lead to heart attack and stroke. According to the American Heart Association, the current medical guideline for heart disease is to check cholesterol levels at age 20, and to treat young adults only if they have extremely high cholesterol.

Until now, the medical community did not know the consequences of exposure to non-optimal lipid levels during young adulthood because it is difficult to disentangle the effects of exposure early in life from exposure later in life when [heart disease](#) becomes evident. The long-term nature of the CARDIA study allowed investigators to sort out the effects of exposure at different times during the life course.

“The study shows that cholesterol levels in young adults are more important than we previously believed, because even the moderate non-optimal levels that are present in most young adults may alter their health decades later,” said Stephen B. Hulley, MD, MPH, senior author of the report. “For many people in their 20s and 30s, it probably matters in the long run what they eat and how much they exercise, even though their risk for having a [heart attack](#) in the short term is low.”

Drug therapy in this age group is controversial. The National Heart, Lung, and Blood Institute’s (NHLBI) National Cholesterol Education Program recommends drug therapy such as statins only if a young person’s cholesterol level remains very high after a trial of lifestyle modification. Some opinion-leaders, however, are pushing the NHLBI for a more aggressive stance in updated guidelines due out early next year. Use of statins in young adults remains a hotly debated topic.

“We’re still not sure whether statin treatment is warranted in young adults who have [cholesterol](#) levels that are non-optimal but not sky-high,” Hulley said. “We don’t know whether taking these drugs for many decades will be cost-effective, and there is insufficient evidence about whether the presumed benefits of lifelong treatment from an early age will outweigh the possible harms.”

Provided by University of California, San Francisco

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