
Pitt study: 'good cholesterol' may not always be good for women



New research indicates that postmenopausal factors may adversely affect the heart-protective qualities of high-density lipoproteins (HDL), also known as "good cholesterol". The study, led by researchers in the University of Pittsburgh Graduate School of Public Health, found that this specific type of blood cholesterol may not translate into a lowered risk of cardiovascular disease in older women.

"This study confirms our previous work on a different group of women and suggests that clinicians need to take a closer look at the type of HDL in middle-aged and older women, because higher HDL cholesterol may not always be as protective in postmenopausal women as we once thought," said lead author Samar R. El Khoudary, PhD, MPH, FAHA, associate professor in Pitt Public Health's Department of Epidemiology. "High total HDL cholesterol in postmenopausal women could mask a significant heart disease risk that we still need to understand."

HDL is a family of particles found in the blood that vary in sizes and cholesterol contents. HDL has traditionally been measured as the total cholesterol carried by the HDL particles, known as HDL cholesterol. HDL cholesterol, however, does not necessarily reflect the overall concentration, the uneven distribution, or the content and function of HDL particles. Previous research has demonstrated the heart-protective features of HDL. This good cholesterol carries fats away from the heart, reducing the build-up of plaque and lowering the potential for cardiovascular disease.

El Khoudary's team looked at 1,138 women aged 45 through 84 enrolled across the U.S. in the Multi-Ethnic Study of Atherosclerosis (MESA), a medical research study that began in 1999 and is still following participants today.

"We have been seeing an unexpected relationship between HDL cholesterol and postmenopausal women in previous studies, but have never deeply explored it," said El Khoudary. Her study looked at two specific measurements of HDL to draw the conclusion that HDL cholesterol is not always cardio-protective for postmenopausal women, or not as "good" as expected.

The number and size of the HDL particles and total cholesterol carried by HDL particles was observed. The study also looked at how age when women transitioned into postmenopause, and the amount of time since transitioning, may impact the expected cardio-protective associations of HDL measures.

In contrast to HDL cholesterol, a higher concentration of total HDL particles was associated with lower risk of atherosclerosis. In addition, having a high number of small HDL particles was found beneficial for postmenopausal women. These findings persist irrespective of age and how long it has been since women became postmenopausal.

On the other hand, large HDL particles are linked to an increased risk of cardiovascular disease close to menopause. During this time, the quality of HDL may be reduced, increasing the chance for women to develop atherosclerosis or cardiovascular disease. As women move further away from their transition, the quality of the HDL may restore – making the good cholesterol cardio-protective once again, according to the research team.

The findings are published in *Arteriosclerosis, Thrombosis, and Vascular Biology*, a journal of the American Heart Association (AHA).

El Khoudary recently was awarded funding from the U.S. National Institute on Aging to expand upon this research work. She seeks to examine the biological mechanisms that contribute to quality change of good cholesterol, so that the cardio-protective contribution of good cholesterol to postmenopausal women's health can be clarified, which would impact guidelines for screening and treatment.

Source: [University of Pittsburgh Schools of the Health Sciences](#)

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