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Contact: Phil Kibak or John Weeks
(504) 552-5004

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Triglycerides: at what level do they increase heart disease risk, and how do they achieve this?

NEW ORLEANS, Nov. 11 -- New evidence presented here today at the American Heart Association's 69th Scientific Sessions suggest that triglycerides, a common blood fat, increase the risk of coronary artery disease and heart attack at half the level currently considered safe, and that they contribute to heart disease by making blood more "sluggish."

A debate is raging over the importance of triglycerides as a heart disease risk factor, said Michael Miller, M.D., director of preventive cardiology at the University of Maryland Medical Center in Baltimore, who presented his findings at today's meeting.

"In our study, having a triglyceride level that was not high by today's standards was a very important predictor that an individual would have a heart attack or require bypass surgery due to advanced coronary artery disease," he said. "And the cutoff was much lower than expected."

Miller and his colleagues analyzed data collected at the Johns Hopkins Medical Institutions in 1977-78 on 460 men and women aged 30-80 years with suspected coronary artery disease, or atherosclerosis, commonly known as "hardening of the arteries." Between 1993 and 1995 they tracked the individuals down and determined how many had experienced heart attack, had died from a heart attack, or required some kind of procedure to treat blood vessels clogged with cholesterol and other fatty material.

The scientists then adjusted for such heart disease risk factors as age, sex, alcohol use, smoking, diabetes, lack of physical activity, high blood pressure, low levels of high-density-lipoprotein cholesterol (HDL, the "good" cholesterol) and high levels of low-density-lipoprotein cholesterol (LDL, the "bad" cholesterol).

"Triglyceride over 200 mg/dl was an important predictor of heart disease events," Miller noted. "When we lowered the cutoff to 150 mg/dl, it was still a significant predictor. When we reduced it to 100 mg/dl, it was still a very powerful predictor. There was nearly a 2.3 times increased risk of having a subsequent coronary event if your triglyceride level was greater than 100 mg/dl in 1977 or 1978."

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The National Cholesterol Education Program classifies a blood level of less than 200 milligrams per deciliter (mg/dl) as desirable. Triglyceride levels generally range between 50 and 250 mg/dl. As people age or gain weight, their triglyceride levels tend to increase.

The guidelines that currently classify triglycerides over 200 mg/dl as high are part of an historic trend to lower the threshold, Miller said. "At one time, triglyceride was not considered high unless it was over 500 mg/dl. Then it was 250 mg/dl. Now, it's 200 mg/dl. These data show that it's an independent predictor of future cardiovascular events and suggest that the present classification of triglyceride levels may need to be refined."

In a second study, Robert S. Rosenson, M.D., director of the preventive cardiology center at Rush Medical College in Chicago, reported that triglycerides may contribute to coronary artery disease and heart attack by making the blood more viscous.

He and his co-author, Christine C. Tangney, Ph.D., studied blood samples from 207 volunteers (62 percent men and 38 percent women) whose ages were between 21 and 81 years.

"At levels above 190 mg/dl, triglycerides start contributing to the viscosity of blood and become an important cardiac risk factor," Rosenson said. The more viscous blood is, the harder it is for the heart to pump it to the tissues, particularly through the smallest blood vessels."

Rosenson said these two studies illustrate the complexity of the triglyceride issue.

"Triglycerides may contribute to heart disease risk in many ways, just like LDL does. We are looking at identifying what triglyceride level is sufficient to increase blood's sluggishness. In no way are we saying this is the only way trigycerides contribute to heart disease risk," he said.

What can a person do to lower their triglyceride level? Aerobic exercise is effective and many runners have levels around 50 mg/dl, said Miller. Foods high in omega-3 fatty acids -- such as salmon, mackerel, herring, sardines and albacore tuna -- lower triglycerides.

Certain medications, such as niacin, lower triglycerides and raise HDL. Fish oil capsules -- which are not recommended for the general public by the American Heart Association -- have some drawbacks, Miller said. At doses required to effectively lower triglycerides, they may cause throat discomfort, and people may develop an aroma reminiscent of a week-old flounder.

Miller's co-authors were: Azita Moalemi, M.D.; Alexander Seidler, Ph.D.; Naghmeh Tebyanian, M.D.; and Thomas A. Pearson, M.D., Ph.D.

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Media advisory: ***Dr. Miller can be reached in Baltimore by calling (410) 328-8919. Dr. Rosenson's office number in Chicago is (312) 563-2011. (Please do not publish phone numbers.)***

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