

Use of certain lipid measures not more effective in predicting coronary heart disease

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The lipid measure apolipoprotein (apo) B: apo A-I ratio is not a better predictor of coronary heart disease risk than traditional lipid ratios that include total cholesterol and HDL-C, according to a study in the August 15 issue of JAMA.

Current risk-prediction instruments and guidelines for coronary heart disease (CHD) prevention emphasize the use of low-density lipoprotein cholesterol (LDL-C), total cholesterol, or both for CHD risk assessment. But in recent years, some evidence has suggested that higher apo B (the primary protein component of LDL) and lower apo A-I (the primary protein component of high-density lipoprotein [HDL]) levels play a role in the development of CHD, and that these measures might be superior to traditional lipid measures for CHD risk prediction, according to background information in the article.

Erik Ingelsson, M.D., Ph.D., of the Framingham Study, Boston University School of Medicine, Framingham, Mass., and colleagues evaluated whether apolipoproteins (the protein component of serum lipoproteins) could be used instead of traditional lipid measures for CHD risk prediction in a large group of men and women who were part of the Framingham Offspring Study. The researchers evaluated serum total cholesterol, HDL cholesterol (HDL-C), LDL-C, non-HDL-C, apo A-I and apo B, and three lipid ratios (total cholesterol:HDL-C, LDL-C:HDL-C, and apo B:apo A-I) in 3,322 middle-aged white participants who were examined between 1987-1991 and were without cardiovascular disease. Fifty-three percent of the participants were women. After a median

(midpoint) follow-up of 15.0 years, 291 participants, 198 of whom were men, developed CHD.

“Our principal findings are 3-fold. First, even though the apo B:apo A-I ratio performed well overall in terms of CHD risk prediction and model performance measures in both sexes, the differences compared with other lipid variables were small and statistically nonsignificant. Non-HDL-C performed relatively less well compared with the lipid ratios. Second, when CHD risk reclassification was evaluated, the differences in net reclassification improvement offered by the total cholesterol:HDL-C ratio vs. the apo B:apo A-I ratio were small and statistically nonsignificant in both sexes. Third, the apo B:apo A-I ratio was not significantly associated with CHD incidence in either sex when added to a model that incorporated components of the Framingham risk score, including total cholesterol:HDL-C. This observation suggests that apo B:apo A-I ratio does not provide incremental predictive utility over established CHD risk factors including traditional lipid measures,” the authors write.

“Given overall equal performance of various lipids ratios, other factors will be critical in guiding the choice of lipid measures that should be used for CHD risk prediction. These factors include the costs and availability of assays, educational needs for health care professionals and the public for interpreting apolipoprotein measures, the possibility of obtaining valid measurements for risk prediction in nonfasting samples or in patients receiving lipid-lowering treatment, and the availability of appropriate therapeutic cutpoints and clinical evidence of benefits accruing from lowering levels (based on randomized, controlled clinical trials). However, with regard to test performance characteristics, our data do not support the need for measuring apo B or apo A-I in clinical practice when traditional lipid measurements are obtained routinely,” the researchers conclude.

Source: JAMA and Archives Journals

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