Non-HDL-C level associated with risk of major cardiovascular events among patients taking statins

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Levels of non-high-density lipoprotein cholesterol (non-HDL-C) among statin-treated patients appears to be associated with the risk of developing a major cardiovascular event, such as a heart attack or stroke, as are levels of low-density lipoprotein cholesterol (LDL-C) and apolipoprotein B, according to a meta-analysis of data from previously published studies appearing in the March 28 issue of *JAMA*.

"Statin therapy is the cornerstone of pharmacological therapy for the primary and secondary prevention of cardiovascular disease. All currently available guidelines state that LDL-C levels should be used as the primary target to initiate and titrate lipid-lowering therapy. However, trials investigating the efficacy of statin therapy have shown that the cardiovascular benefits of statins may go beyond their influence on LDL-C levels. Thus, LDL-C may not be the best lipid parameter to predict cardiovascular risk or to quantify the atheroprotective effect of statin therapy," according to background information in the article. Several alternative lipid and apolipoprotein parameters have been proposed as alternatives for LDL-C, most prominently apolipoprotein B and non-HDL-C (total cholesterol minus HDL).

S. Matthijs Boekholdt, M.D., Ph.D., of the Academic Medical Center, Amsterdam, the Netherlands, and colleagues conducted a meta-analysis to assess whether among patients receiving statins, non-HDL-C and apoB were more strongly associated with the risk of future

cardiovascular events than LDL-C. The study included individual patient data from randomized controlled statin trials in which conventional lipids and apolipoproteins were determined in all study participants at baseline and at 1-year follow-up. The researchers identified 8 trials, published between 1994 and 2008, that met criteria for inclusion in the meta-analysis. The trials included individual patient data for 62,154 patients.

A total of 38,153 study participants were randomized to a statin group and had a complete set of lipid and apolipoprotein levels during statin treatment available. Among these individuals, a total of 158 (0.4 percent) developed a fatal heart attack and 1,678 (4.4 percent) developed a non-fatal heart attack during follow-up. Fatal other coronary artery disease occurred in 615 study participants (1.6 percent) and fatal or nonfatal stroke occurred in 1,029 study participants (2.7 percent). A total of 2,806 participants (7.4 percent) were hospitalized for unstable angina. A total of 6,286 major cardiovascular events occurred in 5,387 study participants (event rate 14.1 percent).

Analysis of the data indicated that among statin-treated patients, levels of LDL-C, non-HDL-C, and apoB were each strongly associated with the risk of major cardiovascular events, but non-HDL-C was more strongly associated than LDL-C and apoB. Also, changes in non-HDL-C explained a larger proportion of the atheroprotective effect of statin intervention than did LDL-C and apoB.

"Given the fact that many other arguments for the clinical applicability of non-HDL-C and LDL-C are identical, non-HDL-C may be a more appropriate target for statin therapy than LDL-C," the authors conclude.

More information: *JAMA*. 2012;307[12]:1302-1309.