

# 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.

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