

HDL Cholesterol, Very Low Levels of LDL Cholesterol, and Cardiovascular Events

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ABSTRACT

BACKGROUND

High-density lipoprotein (HDL) cholesterol levels are a strong inverse predictor of cardiovascular events. However, it is not clear whether this association is maintained at very low levels of low-density lipoprotein (LDL) cholesterol.

METHODS

A post hoc analysis of the recently completed Treating to New Targets (TNT) study assessed the predictive value of HDL cholesterol levels in 9770 patients. The primary outcome measure was the time to a first major cardiovascular event, defined as death from coronary heart disease, nonfatal non-procedure-related myocardial infarction, resuscitation after cardiac arrest, or fatal or nonfatal stroke. The predictive relationship between HDL cholesterol levels at the third month of treatment with statins and the time to the first major cardiovascular event was assessed in univariate and multivariate analyses and was also assessed for specific LDL cholesterol strata, including subjects with LDL cholesterol levels below 70 mg per deciliter (1.8 mmol per liter).

RESULTS

The HDL cholesterol level in patients receiving statins was predictive of major cardiovascular events across the TNT study cohort, both when HDL cholesterol was considered as a continuous variable and when subjects were stratified according to quintiles of HDL cholesterol level. When the analysis was stratified according to LDL cholesterol level in patients receiving statins, the relationship between HDL cholesterol level and major cardiovascular events was of borderline significance ($P=0.05$). Even among study subjects with LDL cholesterol levels below 70 mg per deciliter, those in the highest quintile of HDL cholesterol level were at less risk for major cardiovascular events than those in the lowest quintile ($P=0.03$).

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*Participants in the Treating to New Targets (TNT) study are listed in the Appendix.

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