

Time-Dependent Changes in High Density Lipoprotein Cholesterol and the Risk of Subsequent Cardiovascular Disease in apparently Healthy Individuals

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Background:

High-density lipoprotein (HDL) cholesterol is a strong inverse predictor of cardiovascular events. However, it is not clear whether changes in HDL levels during follow-up in apparently healthy individuals affect subsequent cardiovascular outcomes.

Methods: The study population comprised 10,067 healthy subjects without known cardiovascular disease who underwent a yearly screening program and were followed up for up to 10 years. Low HDL was defined as <40 mg/dL for men and <50 mg/dL for women. Participants were grouped into four groups based on change of HDL cholesterol level between the first (baseline) and second (first year follow-up) visits: High/High (HH), High/Low (HL), Low/High (LH) and Low/Low (LL). The primary endpoint was the occurrence of cardiovascular disease (CVD).

Results:

A total of 390 incident cases of CVD occurred during follow-up. A multivariate cox proportional hazards regression model showed that CVD risk of subjects who retained (HH group), raised (LH group) and lowered (HL group) their baseline HDL were 33%, 30% and 13% respectively lower than for subjects with persistently low (LL group) HDL levels (P-value for trend = 0.03). These findings were independent of baseline HDL levels. Consistently, 8-years cardiovascular diseases rates were lowest among subjects in the HH (persistently high) and LH (increase from baseline low) groups, and highest in the LL (persistently low) and HL (reduction from baseline high) groups (Figure).

Conclusion:

Our data suggest that, in apparently healthy individuals without known cardiovascular disease, changes in HDL levels during follow-up are independently associated with subsequent CVD risk.

