

Abstract

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Insulin resistance and the relationship of a dyslipidemia to coronary heart disease: the framingham heart study.

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OBJECTIVE: The goal of this study was to examine the effect of insulin resistance (IR) in subjects without diabetes on the relationship of a dyslipidemia with high triglycerides and low high-density lipoprotein cholesterol (HDL-C) to the development of coronary heart disease (CHD).

METHODS AND RESULTS: Lower and higher fasting plasma HDL-C and triglyceride concentrations (defined at the study population median) and presence or absence of IR (defined by upper quartile Homeostatic Model Assessment values) were related to the development of myocardial infarction or CHD death in Framingham Heart Study participants without diabetes or a history of CHD (n=2910) attending the 1991 to 1995 examination. During follow-up (mean, 14 years), 128 participants experienced an incident CHD event. With Kaplan-Meier plots, the incidence of CHD was significantly greater with than without IR at either the lowest HDL-C or the highest triglycerides (P<0.001). In multivariable Cox models adjusted for major CHD risk factors, including waist circumference, only subgroups with IR had a significantly higher incidence of CHD. Compared with a reference group without IR and with higher-than-median HDL-C or lower-than-median triglycerides, the hazard ratio (HR) for incident events was significant with only IR and a lower HDL-C (HR 2.83, P<0.001) or higher triglycerides (HR 2.50, P<0.001). These findings were similar in men and women.

CONCLUSIONS: In this community-based sample exclusive of diabetes, incident CHD risk associated with plasma HDL-C or triglycerides was significantly increased only in the presence of IR.

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