

Abstract

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Triglycerides and the risk of coronary heart disease: 10,158 incident cases among 262,525 participants in 29 Western prospective studies.

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BACKGROUND: Many epidemiological studies have reported on associations between serum triglyceride concentrations and the risk of coronary heart disease, but this association has not been reliably quantified. In the present study, we report 2 separate nested case-control comparisons in 2 different prospective, population-based cohorts, plus an updated meta-analysis of 27 additional prospective studies in general Western populations.

METHODS AND RESULTS: Measurements were made in a total of 3582 incident cases of fatal and nonfatal coronary heart disease and 6175 controls selected from among the 44,237 men and women screened in the Reykjavik and the European Prospective Investigation of Cancer (EPIC)-Norfolk studies. Repeat measurements were obtained an average of 4 years apart in 1933 participants in the EPIC-Norfolk Study and an average of 12 years apart in 379 participants in the Reykjavik study. The long-term stability of log-triglyceride values (within-person correlation coefficients of 0.64 [95% CI, 0.60 to 0.68] over 4 years and 0.63 [95% CI, 0.57 to 0.70] over 12 years) was similar to those of blood pressure and total serum cholesterol. After adjustment for baseline values of several established risk factors, the strength of the association was substantially attenuated, and the adjusted odds ratio for coronary heart disease was 1.76 (95% CI, 1.39 to 2.21) in the Reykjavik study and 1.57 (95% CI, 1.10 to 2.24) in the EPIC-Norfolk study in a comparison of individuals in the top third with those in the bottom third of usual log-triglyceride values. Similar overall findings (adjusted odds ratio, 1.72; 95% CI, 1.56 to 1.90) were observed in an updated meta-analysis involving a total of 10,158 incident coronary heart disease cases from 262,525 participants in 29 studies.

CONCLUSIONS: Available prospective studies in Western populations consistently indicate moderate and highly significant associations between triglyceride values and coronary heart disease risk. Because these associations depend considerably on levels of established risk factors, however, further studies are needed to help assess the nature of any independent associations.

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