Inflammatory Markers and the Risk of Coronary Heart Disease in Men and Women

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ABSTRACT

Background Few studies have simultaneously investigated the role of soluble tumor necrosis factor-α (TNF-α) receptors types 1 and 2 (sTNF-R1 and sTNF-R2), C-reactive protein, and interleukin-6 as predictors of cardiovascular events. The value of these inflammatory markers as independent predictors remains controversial.

Methods We examined plasma levels of sTNF-R1, sTNF-R2, interleukin-6, and C-reactive protein as markers of risk for coronary heart disease among women participating in the Nurses' Health Study and men participating in the Health Professionals Follow-up Study in nested case–control analyses. Among participants who provided a blood sample and who were free of cardiovascular disease at baseline, 239 women and 265 men had a nonfatal myocardial infarction or fatal coronary heart disease during eight years and six years of follow-up, respectively. Using risk-set sampling, we selected controls in a 2:1 ratio with matching for age, smoking status, and date of blood sampling.

Results After adjustment for matching factors, high levels of interleukin-6 and C-reactive protein were significantly related to an increased risk of coronary heart disease in both sexes, whereas high levels of soluble TNF-α receptors were significant only among women. Further adjustment for lipid and nonlipid factors attenuated all associations; only C-reactive protein levels remained significant. The relative risk among all participants was 1.79 for those with C-reactive protein levels of at least 3.0 mg per liter, as compared with those with levels of less than 1.0 mg per liter (95 percent confidence interval, 1.27 to 2.51; P for trend <0.001). Additional adjustment for the presence or absence of diabetes and hypertension moderately attenuated the relative risk to 1.68 (95 percent confidence interval, 1.18 to 2.38; P for trend = 0.008).

Conclusions Elevated levels of inflammatory markers, particularly C-reactive protein, indicate an increased risk of coronary heart disease. Although plasma lipid levels were more strongly associated with an increased risk than were

inflammatory markers, the level of C-reactive protein remained a significant contributor to the prediction of coronary heart disease.

Source Information

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