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Genetically Elevated C-Reactive Protein and Ischemic Vascular Disease

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Rating: •Of importance.

Introduction: Elevated levels of C-reactive protein (CRP) are associated with increased risk of cardiovascular disease [1,2]. Although some experimental and clinical studies suggest that high levels of exogenous CRP could impair vascular function [3,4], it is not known whether CRP is truly a mediator of cardiovascular disease.

Aims: To determine whether there is a causal relationship between elevated CRP and increased cardiovascular disease.

Methods: This was a case-controlled and cross-sectional epidemiologic study of 10,276 and 31,992 persons, respectively, from a general population that included individuals who subsequently developed ischemic heart and cerebrovascular disease. Levels of high-sensitivity CRP (hs-CRP) were measured, and genotyping for four CRP polymorphisms and two apolipoprotein E polymorphisms was conducted.

Results: Individuals with elevated levels of hs-CRP of greater than 3 mg/L had a 1.6- and 1.3-fold increased risk for ischemic heart disease and ischemic cerebrovascular disease, respectively, compared with individuals with hs-CRP of less than 1 mg/L. Individuals with hs-CRP polymorphism had a 64% increase in hs-CRP, but this was not associated with increased cardiovascular events. In contrast, individuals with apolipoprotein E polymorphism had elevated cholesterol levels and increased risk for ischemic heart disease.

Discussion: CRP polymorphisms are associated with elevated hs-CRP levels but not with increased cardiovascular events. These findings suggest that elevated hs-CRP levels from CRP polymorphisms are not related to the increased risk of cardiovascular disease.

Comments

Although this study strongly suggests that CRP is not a mediator of cardiovascular disease, it does confirm that hs-CRP is a marker of increased cardiovascular risk. However, whether hs-CRP is an independent marker of cardiovascular risk, and if so, how much it adds to traditional risk markers, still warrants further investigation.

Acknowledgment

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Disclosure

No potential conflict of interest relevant to this article was reported.

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