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More evidence for inflammatory markers in predicting CHD risk

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Joanna Lyford,[Aff1]
Corresponding Affiliation: Aff1

Aff1 MedWire, UK

Keywords

Coronary heart disease, C-reactive protein, fibrinogen, inflammation, plasma activator inhibitor-1, serum amyloid A, von Willebrand factor

Context

The authors looked at four markers of inflammation; fibrinogen, plasma viscosity, von Willebrand factor, and plasminogen activator inhibitor-1, to see if there was any relationship between coronary heart disease (CHD) risk and severity.

Significant findings

Analysis of blood samples revealed that levels of most constituents measured - high-sensitivity C-reactive protein (CRP), fibrinogen, serum amyloid A (SAA), serum viscosity, plasminogen activator inhibitor-1, von Willebrand factor and lipid concentrations - were significantly elevated in patients with chronic CHD compared with controls; only albumin levels were not different between the two groups. The highest correlation ($r = 0.64$) was seen between plasma viscosity and its main determinant, fibrinogen, and between the two classic acute phase reactants, CRP and SAA. 'The correlation was less pronounced if these markers also represented other systems like blood coagulation, fibrinolysis, blood rheology, and endothelial function,' Hoffmeister *et al* report. After full adjustment, odds ratios for the various markers decreased moderately but still remained substantial and statistically significant. Subjects with levels in the upper tertile in =2 of the inflammatory markers had a strongly increased risk compared with subjects in the lower two tertiles. However, levels of the markers were not found to be related to any of the three disease severity scores applied (clinical 1- to 3-vessel score; American Heart Association extension score, and the Gensini score).

Comments

The authors conclude that these results document an independent association between most of the markers of inflammation and chronic CHD, even in clinically stable patients. The combination of several of these biochemical markers, in other words the determination of an 'inflammatory risk profile', may be useful to further stratify cardiovascular risk.

Methods

The authors enrolled patients aged 40 to 68 years who had =1 coronary stenosis of diameter =50%. Control data were provided by healthy donor blood samples from a local blood bank; controls were matched for age and gender in a case:control ratio of 1.5:1 to ensure adequate power. All patients and controls were asked to complete a questionnaire that covered history of heart disease, current medication, alcohol intake, and socioeconomic variables.

Additional information

References

1. Hoffmeister A, Rothenbacher D, Bazner U, Frohlich M, Brenner H, Hombach V, Koenig W: Role of novel markers of inflammation in patients with stable coronary heart disease. Am J Cardiol. 2001, 87: 262-266.