

PublisherInfo		
PublisherName	:	BioMed Central
PublisherLocation	:	London
PublisherImprintName	:	BioMed Central

Different mechanisms by which CMV predisposes to CAD in men and women

ArticleInfo		
ArticleID	:	38
ArticleDOI	:	10.1186/cvm-2001-72060
ArticleCitationID	:	72060
ArticleSequenceNumber	:	17
ArticleCategory	:	Paper Report
ArticleFirstPage	:	1
ArticleLastPage	:	3
ArticleHistory	:	RegistrationDate : 2001-10-18 Received : 2000-11-28 OnlineDate : 2001-10-18
ArticleCopyright	:	Biomed Central Ltd2001

ArticleGrants	:	
ArticleContext	:	1306322

Joanna Lyford,^{Aff1}

Corresponding Affiliation: [Aff1](#)

[Aff1](#) Medwire 28-11-00, UK

Keywords

Immunology, infection, inflammation, risk factors, sex

Context

Associations between cytomegalovirus (CMV) infection and coronary artery disease (CAD) have been reported, and much current research is focused on the mechanisms by which inflammation may contribute to the pathophysiology of atherosclerosis. This new study by the authors suggests that susceptibility to CMV infection-induced CAD differs between men and women.

Significant findings

In men, an elevated CRP level was a significant determinant of CAD even after adjustment for CAD risk factors (OR 3.1; 95% CI 1.21-7.97). CMV seropositivity was associated with elevated CRP levels on multivariate analysis (P = 0.006). Conversely, CMV seropositivity in women was independently predictive of CAD (OR 41.8; 95% CI 4.12-423.74). Also, CRP levels in women with CAD were over 25% higher than those without CAD, although the difference did not reach statistical significance.

Importantly, compared with CMV-negative women, CAD prevalence was higher in Ab+/Tc- and Ab+/Tc+ (13% versus 68% and 64%, both P <0.005) but not in Ab-/Tc+ women (25%). There were no differences in age, smoking, diabetes, hypertension and hypercholesterolemia among women with different types of immune responses to CMV infection.

Comments

These results indicate that multiple mechanisms exist whereby CMV infection and perhaps infection by other pathogens contribute to CAD. They also indicate that the relative contribution of these mechanisms to atherogenesis is sex-determined and is influenced by whether or not the host mounts an inflammatory response to CMV infection as well as by the nature of the immune response.

The authors conclude: 'These observations raise the possibility of novel therapeutic strategies for the prevention or treatment of atherosclerosis. Thus, it might be possible to alter disease outcome favorably through the use of vaccines or cytokine-based strategies designed to change an immune response directed against a causally relevant pathogen from one that conveys disease susceptibility to one that enhances resistance.'

Methods

The multicenter research team analyzed blood samples from 151 men and 87 women undergoing angiography at the Washington Hospital Center, USA. Blood samples were tested for humoral (Ab+) and cellular (Tc+) responses to CMV and for C-reactive protein (CRP); of the total cohort, CAD was diagnosed in 75% of men and 52% of women.

Additional information

References

1. Zhu J, Shearer GM, Norman JE, Pinto LA, Marincola FM, Prasad A, Waclawiw MA, Csako G, Quyyumi AA, Epstein SE: Host response to cytomegalovirus infection as a determinant of susceptibility to coronary artery disease: sex-based differences in inflammation and type of immune response. *Circulation* 2000, 102:2491-2496. 2000, 102: 2491-2496.