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

Complement activation by CRP in RA

ArticleInfo		
ArticleID	:	71
ArticleDOI	:	10.1186/ar-2001-70104
ArticleCitationID	:	70104
ArticleSequenceNumber	:	28
ArticleCategory	:	Paper Report
ArticleFirstPage	:	1
ArticleLastPage	:	3
ArticleHistory	:	RegistrationDate : 2001–7–31 Received : 2001–6–20 OnlineDate : 2001–7–31
ArticleCopyright	:	Biomed Central Ltd2001
ArticleGrants	:	
ArticleContext	:	130753311

Richard Brasington,[Aff1]

Aff1 Washington University School of Medicine, St Louis, MO, USA

Keywords

Complement, C-reactive protein, rheumatoid arthritis

Context

There is evidence that the complement system is involved in the pathogenesis of rheumatoid arthritis (RA). The serum and synovial fluid of RA patients contain complement activation products. Treatment of murine collagen-induced arthritis with a monoclonal antibody to C5 prevents the development of arthritis and attenuates established disease. A humanized form of this antibody has been shown to be effective in a phase II trial for treating RA.

The means by which complement becomes activated in RA are unclear. Immune complexes are present in the synovial fluid of patients with RA, although the evidence that these complexes are responsible for complement activation in RA is conflicting. As C-reactive protein (CRP) can activate complement (both *in vivo* and *in vitro*) the authors hypothesize that CRP activates the complement system in RA.

Significant findings

Serum levels of complexes of CRP and C3d (C3d-CRP) or C4d (CRP-C4d), were significantly higher in patients with active disease, and these levels correlated with the disease activity. Levels of activated C3 and C4 were also increased in patients with active RA. The authors conclude that CRP is partly responsible for the activation of the complement system in RA.

Comments

This study provides evidence that CRP may have an important role in complement activation in RA, since the levels of C3d-CRP and C4d-CRP complexes were higher in patients with active compared to inactive disease. However, there was significant overlap in the findings (e.g. some patients with inactive

disease had much higher levels than patients with active disease) and the correlation between disease activity and complement activation products was relatively weak. In addition, the fact that these data are derived from serum - rather than synovial fluid - limits the conclusions that can be drawn. Nonetheless, this study provides exciting evidence that CRP may play a role in the activation of complement in RA. Further understanding of the role of complement in the pathophysiology of RA is especially important.

Methods

Measurement of complement, CRP, and complement activation products in serum samples; modified Disease Activity Score determination

Additional information

References

1. Molenaar ETH, Voskuyl AE, Familian A, van Mierlo GJ, Dijkmans BAC, Hack CE: Complement activation in patients with rheumatoid arthritis mediated in part by C-reactive protein. Arthritis Rheum. 2001, 44: 997-1002.