15

9G4 EXPRESSION ON AUTOANTIBODIES TO CITRULLINATED PEPTIDES IN PATIENTS WITH EARLY INFLAMMATORY ARTHRITIS AND ESTABLISHED RHEUMATOID ARTHRITIS

Rita A Moura,¹ Inmaculada de la Torre,² Maria J Leandro,³ Jonathan C W Edwards,³ João E Fonseca,^{1,4} Geraldine Cambridge³ ¹Rheumatology Research Unit, Instituto de Medicina Molecular, Lisbon, Portugal; ²Rheumatology Department, Gregorio Marañón

Hospital, Madrid, Spain; ³Centre for Rheumatology, Division of Medicine, University College London, London, UK; ⁴Rheumatology Department, Centro Hospitalar de Lisboa Norte, EPE, Hospital de Santa Maria, Lisbon, Portugal

10.1136/annrheumdis-2011-201231.15

Background The rat monoclonal antibody 9G4 recognises VH4-34-encoded proteins, enabling the identification of inherently autoreactive B cells. In rheumatoid arthritis (RA), evidence for a humoral immune response encoded by VH4-34 gene has been described in the synovial membrane and within hybridomas derived from rheumatoid synovial tissue. The authors have recently described an expansion of circulating 9G4⁺ plasmablasts in patients with active RA.

Objectives The aim of this study was to determine whether 9G4⁺ was expressed on autoantibodies commonly associated with RA.

Materials and methods Serum from 27 patients with established RA and 46 polyarthritis patients (<6 weeks duration) of whom 23/46 were subsequently diagnosed with RA (Early RA, ERA) and 23/46 with other arthritis (early non-RA, ENRA) was studied. 9G4 expression on anti-CCP, antitetanus toxoid (TT), pneumococcal capsular polysaccharide (PCP) antibodies and total serum IgG and IgM was measured by ELISA.

Results 23/27 patients with established RA had anti-CCP antibodies, in which eight expressed 9G4. All were positive for both IgM and IgG anti-CCP. Levels of 9G4 expression correlated more closely with IgM than IgG-CCP. In ERA group, 15/23 patients had anti-CCP and 4/23 had 9G4⁺ anti-CCP. All 4 patients had both IgM and IgG anti-CCP. In ENRA, only one patient had 9G4⁺ IgM anti-CCP, albeit at low titre. 9G4 was not expressed on TT or PCP antibodies.

Conclusions The authors describe the use of the VH4-34 heavy chain gene by autoantibodies to citrullinated peptides early after RA onset. In established RA, usage of VH4-34 by anti-CCP antibodies increased with increasing titre, particularly in IgM-CCP. Therefore, it is possible that the expansion of CCP-specific B cell clones may be due to robust expansion of un-switched B cell clones, possibly including or analogous to those in the splenic marginal zone. This is the first description of the use of the VH4-34 heavy chain gene by autoantibodies to citrullinated peptides. 9G4 expression was largely confined to CCP antibodies from patients with RA.