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B Lymphocyte Depletion in Rheumatoid Arthritis: Targeting of CD20

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Abstract

Background: During the 1990s evidence emerged to suggest that B lymphocyte depletion in rheumatoid arthritis (RA) might be of major benefit. *Methods and Results:* In 1997 the B lympholytic monoclonal anti-CD20 antibody rituximab became available. Significant clinical efficacy has been demonstrated in RA, initially in open studies at University College London and recently in a multicentre randomised controlled trial. Forty RA patients at University College London have now received in total 75 treatment cycles with rituximab (up to 4 individually) alone or in combination with corticosteroid, cyclophosphamide and/or methotrexate. Ongoing immunodynamic studies of these patients have shed light on a number of questions about both the therapeutic potential of B cell targeting, and the pathogenesis of RA. *Conclusions:* The effects of B lymphocyte depletion lend increasing support to the idea that both the inflammatory effector mechanism and the underlying immunoregulatory disturbance in RA are driven by autoantibody rather than T cells.

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Rationale for B Cell-Targeted Therapy in RA

Rheumatoid arthritis (RA) is a multisystem disorder which predominantly targets synovium with chronic inflammation, and the bone marrow with suppression of erythropoiesis leading to normocytic anaemia. Serositis, scleritis, alveolitis, sicca syndrome, hyperplasia of lymphoid tissue and hepatomegaly also occur and about 1 patient in 5 develops the nodular lesions unique to RA. At all these sites, except perhaps those of sicca syndrome, there is prominent