B-CELL REPLETION STUDIES IN RA

After B-cell depletion with rituximab, repletion of the peripheral B-cell compartment in patients with rheumatoid arthritis (RA) recapitulates events during B-cell ontogeny. In this context, it is possible to study how long repletion takes, which subsets of B cells appear when, and where they migrate to.

According to a paper in *Arthritis Research & Therapy*, this approach can also teach us about disease processes in RA.

Burkhard Möller and colleagues treated RA patients with rituximab and studied their responses; 10 patients did not respond to treatment, 6 had a moderate response and 19 a good response (according to European League Against Rheumatism criteria). Although repletion occurred sooner in nonresponders and in patients with a moderate response than in those with a good response, the results were not significantly different. The authors did, however, show that numbers of affinity-matured CD27⁺IgD⁻ immunoglobulin-class-switched memory B cells were higher in patients with no response or a moderate response than in those who responded well to rituximab treatment, which suggests that these cells have a role in disease pathology.

CD27⁻IgD⁺ naive B cells dominated the periphery during repletion; numbers of class-switched memory B cells were higher in the synovium of diseased joints than in the periphery. As Dr Möller explains, “accumulation of class-switched memory B cells, probably post-germinal-center cells, in the synovium is a new finding for RA. This fits the model of disease pathology in RA resulting from an MHC-restricted, immune-mediated, localized inflammation process.”

The authors are now going to study whether monitoring a patient's response to rituximab in this way could be useful in the clinic for predicting disease flares and enabling appropriate scheduling of rituximab re-treatment.

Jenny Buckland

Original article Möller, B. *et al.* Class-switched B cells display response to therapeutic B-cell depletion in rheumatoid arthritis. *Arthritis Res. Ther.* **11**, R62 (2009).