A13 RHEUMATOID ARTHRITIS PATIENTS SHOW A DECLINE IN PERIPHERAL BLOOD CD4+CD161+ T LYMPHOCYTES

Chalan P,[1] Abdulahad W,[1] Huitema M G,[1] Kroesen B J,[2,3] Brouwer E,[1,3] Boots A M H[1,3,4] *[1]Department of Rheumatology and Clinical Immunology, University Medical Center Groningen, Groningen, Netherlands; [2]Department of Medical Biology, University Medical Center Groningen, Groningen, Netherlands; [3]Groningen Research on healthy Ageing and Immune Longevity (GRAIL); [4]Merck Research Laboratories, Oss, Netherlands*

10.1136/ard.2010.149096.13

Background and objectives Ample evidence suggests a role for T lymphocytes in the pathogenesis of rheumatoid arthritis (RA). CD161, a prototypic NK receptor was shown to confer tissue migratory properties to T cells and may thus contribute to tissue pathology. The role of CD161+ T cells in recently diagnosed RA has not been investigated yet.

Our first objective was to provide clues on T cell subset(s) involved in RA pathology by analysing frequencies of circulating T lymphocytes with naïve, central memory (CM), effector memory (EM), terminally differentiated (TD) phenotype and by assessing CD161 expression. Secondly, we assessed whether T cell subset changes correlated with disease activity. Thirdly, we investigated the influence of methotrexate (MTX) treatment on T cell subsets.

Materials and methods Fresh EDTA blood from recently diagnosed, non-treated RA patients (n=21) and from age-/sex-matched healthy controls (HC, n=17) was stained with fluorochrome-conjugated anti-CD4, CD8, CD45RO, CCR7, CD161 antibodies and analysed using flowcytometry (FACSCalibur). Thirteen patients had a second measurement 14 weeks after start of methotrexate treatment. DAS28, ESR, CRP, measures of disease activity, were assessed at baseline (before treatment), and at 14 weeks (after treatment).

Results RA patients (at baseline) and HC showed similar frequencies of circulating T_{Naive}, T_{CM}, T_{EM}, T_{TD} cells, within both the CD4+ and CD8+ peripheral compartments. Of note, the frequency of CD161+ T cells in CD4+, but not CD8+ T cells was significantly decreased in RA (p=0.017). Moreover, the level of CD161 expression (MFI) on CD4+ T cells was significantly reduced (p=0.005). The percentage and the absolute number of circulating CD4+CD161+ T cells were found to be inversely correlated with DAS28 (−0.66, p=0.007 and −0.54, p=0.038, respectively). MTX treatment tended to increase the frequency of CD4+CD161+ T lymphocytes when compared to baseline.

Conclusions The relative proportions of circulating naïve, memory and terminally differentiated T lymphocytes do not differ between RA patients and healthy controls.

The decline in the number of circulating CD4+CD161+ T lymphocytes and its inverse correlation with disease activity may suggest that these cells have migrated to the joints. Furthermore, the relative increase of CD4+CD161+ T cells following MTX treatment suggests that CD4+CD161+ T cell subset might qualify as a biomarker of disease activity in RA.