## 39 POLYMYALGIA RHEUMATICA IS CHARACTERISED BY PRO-INFLAMMATORY, LATE STAGE CD8+ T CELLS

K S M van der Geest,[1] W H Abdulahad,[1] M G Huitema,[1] B J Kroesen,[2] A Rutgers,[1] A M H Boots,[1] E Brouwer[1] *[1]Department of Rheumatology and Clinical Immunology, University Medical Center Groningen, University of Groningen, Groningen, The Netherlands; [2]Department of Medical Biology, University Medical Center Groningen, University of Groningen, Groningen, The Netherlands*

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**Background and objectives** Polymyalgia rheumatica (PMR) is a frequent, inflammatory rheumatic disease affecting older people. Previous studies suggest that T cell mediated immune responses contribute to PMR. However, little is known about CD4+ and CD8+ T cell subsets and their function in PMR. Furthermore, it remains to be elucidated whether immune ageing contributes to the development of this age-related disease. The authors hypothesised that senescent T cells can functionally contribute to PMR pathogenesis. Therefore, the authors studied frequencies of circulating T cell subsets in defined stages of differentiation and assessed characteristics of senescent (CD28 null) T cells in PMR patients.

**Materials and methods** Peripheral blood was obtained from eight newly-diagnosed, untreated PMR patients. Thirty-nine healthy age- matched older controls were recruited from the Groningen Longevity Cohort. Flow cytometric analysis of CD45RO, CCR7 and CD28 expression was used to enumerate CD4+ and CD8+ T cell differentiation subsets and senescent (CD28null) T cells. Furthermore, naïve and memory regulatory T cells were identified based on CD25 and CD45RA expression. In addition, full blood of all PMR patients and eleven older controls was stimulated with PMA/calcium-ionophore in the presence of brefeldin A during 4 h. This was followed by intracellular staining for IFNγ, TNF, IL-4 and IL-17.

**Results** Compared to healthy controls, PMR patients had decreased percentages of circulating terminally differentiated (CD45RO-CCR7-) CD4+ T cells. However, the authors did not observe altered percentages of Th1, Th2, or Th17 cells in PMR patients. In addition, percentages of naïve and memory regulatory T cells were normal in PMR patients. In CD8+ T cells of PMR patients, percentages of naïve (CD45RO-CCR7+) cells were decreased. Interestingly, percentages of CD28null cells were increased within the effector memory (CD45RO+CCR7+) and terminally differentiated CD8+ T cell populations of PMR patients. Moreover, a significantly increased potential to produce IFN-gamma and a strong trend towards more TNF production were observed in CD8+T cells of PMR patients.

**Conclusions** Our data showed premature immune ageing (loss of CD28) of effector memory and terminally differentiated CD8+T cells in PMR-patients. This was associated with an enhanced pro-inflammatory potential of CD8+ T cells. In contrast, the authors observed no clear alterations of Th-subsets and regulatory T cells in PMR patients. Altogether, these findings imply a role for late stage CD8+ T cells in PMR pathogenesis.