



POSTER PRESENTATION

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# Patients with non-relapsing ANCA-associated vasculitis have increased numbers of circulating IL-10 producing Th17 cells

B Wilde<sup>1,2</sup>, M Thewissen<sup>1</sup>, P van Paassen<sup>1</sup>, M Hilhorst<sup>1</sup>, J Damoiseaux<sup>1</sup>, O Witzke<sup>2</sup>, J W Cohen Tervaert<sup>1\*</sup>

From 5th European Workshop on Immune-Mediated Inflammatory Diseases  
Sitges-Barcelona, Spain. 1-3 December 2010

## Introduction/aim

IL-17 producing T-cells (Th17) were recently defined as a new, pro-inflammatory T-cell subset and are considered to have a key role in autoimmune diseases.

Importantly, it was recently described that anti-inflammatory regulatory T-cells (Treg) are able to convert to pro-inflammatory Th17 cells ("Plasticity") and vice versa. Little is known about the Th17 response or plasticity in ANCA-associated vasculitis (AAV). Therefore, we investigated Th17 responses in AAV.

## Patients and methods

47 patients with ANCA-associated vasculitis and 12 age-matched healthy controls (HC) were studied. PBMC were isolated by ficoll gradient centrifugation and stimulated for 4 hours with phorbol-myristate-acetate/ionomycin in presence of brefeldin A. Intracellular staining was performed to detect IFN $\gamma$ , IL-4, IL-10 and IL-17A producing T-helper-cells by flow cytometry. Ten renal biopsies with necrotizing-crescentic-glomerulonephritis (NCGN) were stained for IL-17 by immunohistochemistry.

## Results

AAV patients in remission (n=27) and with active disease (n=20) had increased numbers of circulating IL-17A<sup>+</sup> T-helper-cells as compared to HC (2.04  $\pm$  1.65% vs. 0.73  $\pm$  0.36%, p<0.0005 and 1.85  $\pm$  2.15% vs. 0.73  $\pm$  0.36%, p=0.05). Lesional IL-17<sup>+</sup> cells were present in renal biopsies with necrotizing crescentic glomerulonephritis (NCGN). Moreover, IL-10<sup>+</sup>/IL-17<sup>+</sup> T-helper-cells were found both in HC and AAV patients. However, AAV patients showed higher numbers of IL-10<sup>+</sup>/IL-17<sup>+</sup>

T-helper-cells than HC (0.054  $\pm$  0.048% vs. 0.025  $\pm$  0.014%, p<0.05). Furthermore, patients with non-relapsing disease course had significantly more IL-10 producing cells Th17 cells than patients with relapsing disease course (0.063  $\pm$  0.039% vs. 0.041  $\pm$  0.056%, p<0.05).

## Conclusion

The results of this study emphasize the importance of circulating and lesional Th17 cells in AAV. IL-17<sup>+</sup> cells participate in renal inflammation related to AAV. Elevated numbers of IL-10 producing Th17-cells are demonstrated for the first time in AAV and might point at enhanced plasticity. Further efforts are needed to unravel the role of Th17 cells in AAV.

## Author details

<sup>1</sup>Dept. of Internal Medicine, Division of Clinical and Experimental Immunology, University Hospital Maastricht, Maastricht, The Netherlands.

<sup>2</sup>Dept. of Nephrology, University Duisburg-Essen, Essen, Germany.

Published: 25 November 2010

doi:10.1186/1479-5876-8-S1-P62

**Cite this article as:** Wilde et al.: Patients with non-relapsing ANCA-associated vasculitis have increased numbers of circulating IL-10 producing Th17 cells. *Journal of Translational Medicine* 2010 **8**(Suppl 1): P62.

<sup>1</sup>Dept. of Internal Medicine, Division of Clinical and Experimental Immunology, University Hospital Maastricht, Maastricht, The Netherlands  
Full list of author information is available at the end of the article