Medical or Research Professionals/Clinicians

Topic area: Clinical topics by disease

Topic: 22. Psoriatic arthritis

Submission N°: EULAR17-4665

APREMILAST EXPANDS IL-10-PRODUCING REGULATORY B CELLS, AND DECREASES TH1 AND TH7 CELLS IN PSORIATIC ARTHRITIS AND PSORIASIS

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My abstract has been or will be presented at a scientific meeting during a 12 months period prior to EULAR 2017: No

Is the first author applying for a travel bursary and/or an award for undergraduate medical students?: No

Background: IL-10-producing regulatory B cells (Bregs), also known as B10 cells, are decreased and inversely correlate with IFN-γ- and IL-17-producing NK and T cells in patients with psoriatic arthritis (PsA) and psoriasis (Ps)(1-3)

Objectives: To assess whether or not apremilast, a PDE4 inhibitor recently approved for the treatment of Ps and PsA, is able to induce IL-10-producing B cells and decrease Th1 cells and Th17 cells in vivo

Methods: PBMCs and magnetically purified B cells were isolated from 21 patients (7 PsA, all responders; 14 Ps, 9 responders) at baseline and post-apremilast treatment (at 3 and 6 months in responders; at 3 months in non--responders, as they switched to biologicals). Phenotypic analysis of CD3, CD19, CD24, CD27, CD38 and intracellular expression of cytoplasmic IL-10, IFN-γ, IL-17 after bacterial CpG (ODN2006) and PMA/ionomycin stimulation was examined by flow cytometry

Results: At 6 months, apremilast significantly increased IL-10-producing Bregs (IL-10+CD19+, B10 cells) compared to baseline and 3 months. B10 cells increase was confined mainly to the transitional Bregs (CD19+CD24highCD38high) rather than memory Bregs (CD19+CD27+CD24high). IFNγ+CD3+ (Th1) and IL-17+CD3+ (Th17) T cells were significantly decreased at 3 and 6 months ($p<0.05$, for both). There was an inverse correlation between percentages of B10 cells and IFN-γ-producing CD3+ cells. The percentage of B10 cells were not changed post-treatemnt in non-responders.

Conclusions: Our data suggest that apremilast may exert its therapeutic effect through the expansion of IL-10-producing Bregs and the decrease of IFN-γ- and/or IL-17-producing T cells

References: 1. Mavropoulos et al Ann Rheum Dis 2015;74 Suppl 2 423

2. Mavropoulos et al Ann Rheum Dis 2016;75 Suppl 2 903

3. Mavropoulos et al Arthritis Rheumatol. 2016; 68 (suppl 10).

Disclosure of Interest: None declared