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ASSOCIATION OF VITAMIN D DEFICIENCY WITH REDUCED IL10-PRODUCING REGULATORY B CELLS IN SYSTEMIC SCLEROSIS

A. Mavropoulos¹, C. Liaskos¹, A. Gkoutzourelas¹, C. G. Katsiari¹, D. P. Bogdanos¹, L. I. Sakkas*¹

¹Rheumatology and Clinical Immunology, University of Thessaly, School of Health Sciences, LARISSA, Greece

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Background: IL-10-producing regulatory B cells (Bregs), also known as B10 cells, are decreased and functionally impaired in patients with systemic sclerosis (SSc), particularly in those with SSc-associated interstitial lung disease (1). As serum 25-OH-vitamin D (vitD) levels are associated with clinical aspects in patients with SSc (2), we investigated whether there is any link between vitD levels and Breg levels.

Objectives: To assess whether or not vitD deficiency in SSc is associated with the percentages of circulating IL-10-producing Breg cells.

Methods: PBMCs and serum samples were isolated from 55 patients with systemic sclerosis. Serum VitD levels were measured using a commercially available sandwich ELISA kit. Phenotypic analysis of CD19, CD24, CD27, CD38 and intracellular expression of cytoplasmic IL-10 following bacterial CpG (ODN2006) and PMA/ionomycin stimulation was examined by flow cytometry using specific fluorochrome-conjugated monoclonal antibodies (BD Biosciences).

Results: Systemic sclerosis patients were divided into two groups (vitD deficient or not) based on a serum concentration cut off value of 20 ng/ml. The mean vitD levels in the deficient group were 14.11 ± 3.6 ng/ml (n=17) whereas the mean vitD levels in the non-deficient group were 37.5 ± 12.9 ng/ml (n=38). IL-10-producing B cells (B10 cells) were significantly decreased in vitD deficient patients compared to those with medium/high levels (p=0.02). CD19+CD27+ (memory) B cells were also significantly reduced in patients with VitD deficiency (p=0.004). In addition the ratio of naïve/memory B cells was significantly higher in VitD deficient patients (p<0.05). Within the memory B cell fraction, the CD19+CD27+CD24hi cells also known as phenotypic memory Bregs, were mostly decreased (p=0.001). There was no significant association between CD19+CD38hiCD24hi (transitional) Bregs and VitD levels.

Conclusions: Our data suggest that vitamin D deficiency may account for reduced B10 cells in systemic sclerosis

References: 1. Mavropoulos et al Arthritis Rheumatol. 2016;68:494-504

2. Arnson Y et al Autoimmun Rev. 2011;10:490-4.

Disclosure of Interest: None declared