Immunome Res 2018, Volume 14
DOI: 10.4172/1745-7580-C2-018

T helper subsets and regulatory T cells in different groups of rheumatoid arthritis patients

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Aim: Rheumatoid arthritis (RA) is an autoimmune disease that causes chronic inflammation of the joints and other areas of the body. Recent studies have indicated the imbalance of Th subsets and Treg activity in development, progression, and remission of RA. Here, we investigated the mRNA expression of four major transcription factors T-bet (Th1), GATA (Th2), RORc (Th17), and Foxp3 (Treg) in peripheral blood of different groups of RA patients.

Methods: In a case-control study, 60 patients with RA, including 20 newly diagnosed, 20 under treatment, and 20 in remission, as well as 20 patients with osteoarthritis, and 20 age- and sex-matched healthy individual were enrolled. Diagnosis and classification of patients was done according to American College of Rheumatology criteria. Relative mRNA expression of transcription factors, including T-bet, GATA, RORc, and Foxp3, was measured using qRT-PCR.

Results: Relative expression of T-bet in RA patients was significantly higher than in healthy controls (P=0.002), while relative expression of Foxp3 in RA patients was significantly lower in than healthy controls (P<0.0001). There was no significant difference in expression of GATA3 or RORc among RA patients, osteoarthritis, and healthy controls.

Conclusions: The results indicate the importance of Th1 and Treg cells in RA; nevertheless, the role of Th17 cells seems to be of little importance in these patients. It appears that Th2 cells do not interfere with the development of RA.

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