The impact of anti-TNF therapy on CD4+ T cell lymphocyte subset imbalances in patients with active ankylosing spondylitis

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Background: Ankylosing Spondylitis (AS) is a progressive, chronic, inflammatory skeletal disorder affecting the spine and sacroiliac joints. To date, the disease etiology remains unclear. Some studies have shown that T lymphocytes play important roles in the inflammatory process of AS. However, the role of comprehensive subtype lymphocyte subset imbalance in AS was rarely mentioned.

Objectives: To investigate the role of Treg and CD4+ T cells of different differentiation stages and Treg cells in active ankylosing spondylitis.

Methods: Ankylosing Spondylitis Disease Activity Score (ASDAS) was used to assess disease activity and AS patients were divided into active disease group (ASDAS>1.3) and inactive disease group (ASDAS<1.3). Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) were also recorded. Flow cytometry analyses were carried out to detect the levels of a series of lymphocytes including different stages of differentiation CD4+ T cells, CD8+ T cells, helper T cells, cytotoxic T cells (Tc), regulatory cells (Treg), B lymphocytes and so on. Evaluation of hip joint disease were by Bath Ankylosing Spondylitis hip X-ray index. Ankylosing Spondylitis Disease Activity Score (ASDAS) was used to assess disease activity and AS patients were divided into active disease group (ASDAS>1.3) and inactive disease group (ASDAS<1.3).

Results: A total of 23 active AS patients (Age: 31.74±10.20 yrs, M/F: 19/4) and 50 healthy subjects (Age: 34.68±9.72 yrs, M/F: 45/15) were included in the study. The percentage of initialization CD4+ T cells (CD3+CD4+CD45RA+) and central memory CD4+ T cells (CD3+CD4+CD45RA-CCR7+) were significantly higher in the AS groups compared with the healthy individuals (P < 0.05). However, the percentage of and Treg cells (CD3+CD4+CD25+CD127+) were significantly lower in the AS groups (P < 0.05). After 12 weeks of TNF-RFc treatment, the percentage of initialization CD4+ T cells and central memory CD4+T cells are significantly reduced. In contrast, the proportion of Treg cells increased significantly.

Conclusion: Initialization CD4+ T cells (CD3+CD4+CD45RA+CCR7+), central memory CD4+ T cells (CD3+CD4+CD45RA-CCR7+), and Treg cells (CD3+CD4+CD25+CD127+) may play a role in the pathogenesis of AS. The down regulation of initialization CD4+ T cells and central memory, and the up regulation of Treg cells in active AS patients are significant for the evaluation of the curative effect of mTNF-RFc.

REFERENCES

Disclosure of Interests: None declared