Objectives: To evaluate the quantitative statuses of peripheral CD4+ T-cell subpopulations in patients with gout and further investigate the effects of immunomodulatory combination therapies on those cells.

Methods: Total 247 patients who met the clinical criteria of gout from the American College of Rheumatology and 206 healthy controls (HCs) were enrolled in this retrospective cross-sectional study. Among those patients, 70 follow-up patients donated their peripheral blood after receiving immunomodulatory drugs (e.g., low-dose interleukin-2, rapamycin, metformin, retinoic acid, etc). The absolute numbers of Th1, Th2, Th17 and Tregs in peripheral CD4+ T-cell subsets were detected by flow cytometry combined with standard absolute counting beads.

Results: Compared with HCs, the absolute numbers of Th1 and Th17 were evidently increased in gout patients (P<0.001), while the level of Tregs was significantly decreased (P=0.05) (Figure 1). After immunomodulatory combination treatment, there were dramatical increases in a wide variety of CD4+ T subsets such as Th1, Th17 and Tregs (P<0.05). Interestingly, the increased amount of Tregs was much more than that of other T effector (Tgf) cell subsets, leading to the decrease ratios of Teffs/Tregs such as Th2/Tregs, restoring immune homeostasis (Figure 2).

Conclusion: This cross-sectional study clarified the abnormal statuses of CD4+ T-cell subsets in gout patients, suggesting that CD4+ T subsets, especially Tregs, might be relevant and play a crucial role in the pathogenesis of gout, thus providing a potential therapeutic target for gout patients. Immunomodulatory combination therapies effectively increase the number of Tregs and may help for gout patients' symptom remission.

References:

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