Defective functions of circulating CD4+CD25+ and CD4+CD25- T cells in patients with chronic ordinary urticaria

李岳倫

Chen WC;Chiang BL;Liu HE;Leu SJ;Lee YL

摘要

Abstract

BACKGROUND: Patients with chronic ordinary urticaria (CU) are divided into two groups: 30-50% have chronic autoimmune urticaria, and the remainder have chronic idiopathic urticaria. CD4(+)CD25(+) regulatory T (Treg) cells play critical roles in maintaining peripheral tolerance and preventing autoimmunity, but the characteristics of Treg cells have not yet been defined in CU. OBJECTIVE: To identify whether CD4(+) T cells play an important immunoregulatory role in the etiology of CU, we determined the frequencies and functions of circulating CD4(+)CD25(+) and CD4(+)CD25(-) T cells in CU patients and healthy control subjects, with special focus on the characteristics of CD4(+)CD25(+) T cells. METHODS: Peripheral blood mononuclear cells (PBMCs) were obtained from CU and healthy controls in this study. The frequency of CD4(+)CD25(+) T cells in PBMCs was detected by flow cytometry. The expression levels of forkhead box P3 (FOXP3) and transforming growth factor-beta (TGF-beta) in CD4(+)CD25(+) T cells were detected by real-time PCR. Furthermore, the suppressive function of CD4(+)CD25(+) T cells was analyzed. Additionally, the Th1/Th2 cytokine secretory profile in mitogen-stimulated CD4(+)CD25(-) T cells was measured by ELISA. RESULTS: An increased frequency of CD4(+)CD25(+) T cells was observed in CU patients (n=19) compared to control subjects (n=7). No significant difference was detected in the expression levels of FOXP3 or TGF-beta between CU patients (n=14) and control subjects (n=7). Strikingly, the suppressive capacity of CD4(+)CD25(+) Treg cells from 2 of 5 CU patients was partially defective. We also found that cytokine production from CD4(+)CD25(-) T cells was significantly reduced in CU patients (n=9) compared to healthy donors (n=11). CONCLUSIONS: Our data demonstrate that CD4(+)CD25(+) and CD4(+)CD25(-) T cells in PBMCs exhibit defective functions in CU patients.