PIGMENTATION

CIRCULATING CCL20: A POTENTIAL BIOMARKER FOR ACTIVE VITILIGO TOGETHER WITH THE NUMBER OF TH1/17 CELLS

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Background: Vitiligo is an autoimmune disease with varying pathological features. Activation of the CCL20-CCR6 axis plays an important role in chronic inflammatory diseases. However, whether CCL20-CCR6 and Th1/17 cells are indicative of active vitiligo is unclear.

Objective: To investigate the potential role of CCL20 and the involvement of Th1/17 and Tc1/17 cells in the mechanism in vitiligo.

Methods: One hundred patients with vitiligo, and 20 healthy controls were included. The serum and blister fluid IL-17, IFN-γ, CCL20, and CXCL10 were studied using enzyme-linked immunosorbent assays. The numbers of Th1/17 cells and Tc1/17 cells in circulation were quantified using flow cytometry. CCR6 mRNA in peripheral blood mononuclear cells (PBMCs) was analyzed by real-time polymerase chain reaction and the protein level was confirmed by western blotting. CCR6 and CCL20 expression in lesions was analyzed by immunohistochemistry.

Results: The serum CCL20 level was significantly elevated in patients with vitiligo. The level of serum CCL20 was higher in active than in the stable stage, which correlated positively with the Vitiligo European Task Force spreading score and the Vitiligo Area Scoring Index score. Patients with active vitiligo had elevated numbers of circulating Th1/17 cells and Tc1/17 cells, and upregulated expression of CCR6 in PBMCs and lesions. After effective treatment, the level of CCL20 in sera and blister fluid was significantly decreased, as were the numbers of circulating Th1/17 cells and Tc1/17 cells.

Conclusion: CCL20 might be a vital biomarker of active vitiligo, and circulating Th1/17 and Tc1/17 cells are involved in the pathogenesis of vitiligo.