PSORIASIS

EFFECTS OF TUMOR NECROSIS FACTOR-LIKE LIGAND 1A (TL1A) ON IMIQUIMOD-INDUCED PSORIASIFORM SKIN INFLAMMATION IN MICE

Lin Li [(1)]

Department Of Dermatolog, Chengdu Second People's Hospital, Chengdu, China [(1)]

Background: Tumor necrosis factor-like ligand 1A (TL1A), as a master regulatory cytokine, plays a key role in the development of diverse T-cell-mediated inflammatory and autoimmune diseases. Our previous studies demonstrated that serum TL1A levels were significantly elevated in patients with psoriasis vulgaris (PV) and patients with PV had elevated percentage of DR3-expressing CD 8(+) and CD14 (+) PBMCs.

Objective: To further understand the roles of TL1A in the pathogenic mechanism of psoriasis and to find a possible new therapeutic strategy in the treatment of psoriasis.

Materials and Methods: The direct effects of TL1A injection in mice skin and the therapeutic effects of TL1A blockade in imiquimod (IMQ)-induced psoriasis-like mouse model were researched in this study. The clinical and histological changes of the mice were evaluated by clinical score, epidermal thickness changes and Baker score. The number of T cells, neutrophils and DCs were detected by immunohistochemical staining. The mRNA expression of TL1A, IFN-γ and IL-17 were assayed by qPCR.

Results: Firstly, we found the expressions of TL1A in IMQ-treated lesions were significantly higher than Vaseline control group. And then, the results showed that TL1A injection exacerbated the psoriasiform phenotype on IMQ-treated skin (including clinical score, epidermal thickness changes and Baker score) by increasing the number of T cells, neutrophils and DCs and upregulating the mRNA expression of IFN-γ and IL-17. However, anti-TL1A mAb can alleviate psoriasis-like lesions in clinical and effectively improved the histopathologic changes in IMQ-induced psoriasis-like mice after treatment. Moreover, anti-TL1A mAb also reduced the number of infiltrated CD3+T cells, MPO+neutrophils, and CD11c+DCs in psoriasis-like lesions and obviously decreased the expression of IFN-γ and IL-17 in psoriasis-like lesions.

Conclusions: TL1A might be involved in the pathogenesis of psoriasis, and targeting TL1A by anti-TL1A mAb might provide a solid foundation and novel therapeutic sight in the treatment of psoriasis.