PSORIASIS

TOPICAL TREATMENT WITH VITAMIN D3 ANALOGUE DECREASES MDR1-EXPRESSING T CELLS INFILTRATING IN PLAQUE PSORIASIS

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Introduction: Topical application of corticosteroid and/or vitamin D3 analogue is still important choice in the treatment of psoriasis. However, long-term use of topical corticosteroids sometimes brings about resistance to the treatment. MDR1-expressing lymphocytes can be associated with the corticosteroid resistance in several inflammatory disorders. We have previously shown that MDR1-exprssing, corticosteroid-resistant, pathogenic T cells infiltrate in psoriatic skin. Moreover, topical corticosteroid up-regulates MDR1 expression in skin-infiltrating T cells. Yet unknown is the effect of topical vitamin D3 analogue on their MDR1 expression. There have been controversial findings. While vitamin D3 itself can induce MDR1 gene expression in some cell lines, it also can suppress function of MDR1+ Th17 cells.

Objective: To investigate the effect of vitamin D3 analogue on MDR1 expression of psoriatic skin-infiltrating T cells.

Materials and methods: Stored skin-infiltrating T cell samples expanded from plaque lesions of seven psoriasis patients were used. Skin-infiltrating T cells were expanded using IL-2 and anti-CD3/CD28 antibody-coated microbeads from the skin biopsy specimens taken from corticosteroid- or vitamin D3-treated psoriatic skin. The function of MDR1 was assessed by Rh123 efflux assay.

Results: In corticosteroid- and vitamin D3-treated skin, both CD4+ and CD8+ T cells contained MDR1+ cells. However, the frequency of MDR1+ T cells was significantly lower in vitamin D3- treated skin than in corticosteroid-treated skin (P=0.04). In vitro treatment of

psoriatic skin-infiltrating T cells with vitamin D3 slightly elevated the MDR1 function without statistical significance. Thus, vitamin D3 might induce MDR1 expression in T cells in some in vitro conditions, but its topical application rather suppresses MDR1 expression of psoriatic skin-infiltrating T cells.

Conclusion: Topical vitamin D3 decreases MDR1 expression in psoriatic skin-infiltrating T cells, possibly preventing from corticosteroid resistance.