ATOPIC ECZEMA/DERMATITIS

DIFFERENCES IN TRERAPEUTIC EFFECTS OF TOPICAL BENVITIMOD, CORTICOSTEROIDS AND CALCINEURIN INHIBITORS IN ATOPIC DERMATITIS-LIKE MURINE MODELS AND THE POSSIBLE MECHANISMS

Yuzhen Lan [1] - Jianzhong Zhang [2]

Peking University Third Hospital, Dermatology Department, Beijing, China [1] - Peking University People's Hospital, Dermatology Department, Beijing, China [2]

Introduction:. Benvitimod is a new topical treatment and has been shown to be effective for atopic dermatitis (AD). However, the relative efficacy of benvitimod vs. topical corticosteroids and calcineurin inhibitors, the mechanism of benvitimod on AD are not fully understood.

Objective: To study the therapeutic effects of topical benvitimod vs. corticosteroids and calcineurin inhibitors in MC903 induced AD-like murine models and the possible mechanisms.

Materials and Methods: AD murine models were established by repeated topical application of MC903 on dorsal ear skin of Wild BALB/c mice. Then the mice were randomly divide into 6 groups, 6 mice in each group. The mice with AD-like lesions were topically treated for 12 days with vehicle of benvitimod cream(vehicle control), 0.5% benvitimod cream,1.0% benvitimod cream,0.1% mometasone furoate cream and 0.1% tarcrolimus cream, respectively. Skin scoring of dermatitis, ear thickness, histopathology and TEWL were assessed. Immunohistochemistry was used to measure CD4+T cells, mast cells and expression of TSLP in lesional skin.

Results: After treatment, the dermatitis score in 0.5% and 1.0% benvitimod group was decreased by 60.36% and 63.76% respectively（P<0.001）. 1.0% benvitimod was more effective than tarcrolimus（P<0.05）. No significant difference was found between benvitimod groups and mometasone furoate group. Ear thickness was reduced in both 0.5% and 1.0% benvitimod group respectively (P<0.001) with 1.0% benvitimod cream being more effective. The effects of benvitimod were similar to tarcrolimus group but less than mometasone furoate group. TEWL in benvitimod groups were lower than vehicle group and the epidermal hyperplasia was reduced. The CD4+T and mast cell infiltration in skin lesions were declined. TSLP protein expression were down-regulated.

Conclusions: Topical benvitimod could improve AD-like symptoms in BALB/c murine models and this effect might be mediated by inhibition of inflammation and improvement of skin barrier function.