

Effect of Jumihaidokuto on UVB-induced skin damage

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Background: Jumihaidokuto (JHT), a traditional Chinese medicine, has been clinically prescribed for the treatment of patients with skin disorder with redness and swelling, such as atopic dermatitis or acne vulgaris. However, it remains unknown how JHT ameliorates the skin disorders. In this study, we investigated the effect of JHT on UVB-induced skin inflammation model.

Methods: Male hairless mice (HR-1) were treated with 1000 mg/kg JHT for 3 weeks. After the last injection, mice were received single dose of 250mJ/cm² UVB. Before and after irradiation, we measured following factors; skin moisture content in epidermis and dermis, skin erythema dose, and transepidermal water loss (TEWL). We also evaluated the effect on skin thickness and the infiltration of neutrophil and macrophage by HE staining and immunohistochemical (IHC) analysis, respectively.

Results: UVB irradiation decreased the skin moisture content in both skin layers, and increased skin erythema dose and TEWL. Pretreatment with JHT significantly improved the skin moisture content loss and TEWL increment, but not skin erythema.

In addition, HE staining revealed UVB irradiation led to edema in dermis and hyperplasia in epidermis. Furthermore, IHC analysis also revealed UVB irradiation facilitated the infiltration of neutrophil and macrophage into dermis. On the other hand, pretreatment with JHT inhibited the edema, hyperplasia and the infiltration of neutrophil and macrophage induced by UVB irradiation.

Conclusion: These results suggest JHT could protect from UVB-induced skin moisture loss and inflammation.