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Letter to the Editor

"Celastrol" for Atopic Dermatitis

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Dear Editor,

Atopic dermatitis is also known as eczema. It is a chronic relapsing inflammatory skin disorder and can occur in any age of people which causes skin itchy, red, and swollen, even scaling. Nowadays, the overall prevalence rate of atopic dermatitis is approximately 2-3% in China that contains 15-30% of children and 2-10% of adults. Topical corticosteroids and emollients are the major treatment in western for atopic dermatitis to reduce the skin drying, swelling, and redness during inflammation [1]. However, this only takes a temporary relief on the symptoms, not a permanent cure. A traditional Chinese medicine compound, "celastrol" and its formulations used for the treatment of atopic dermatitis in China within these few years.

"Celastrol" is a natural product derived from the Celastraceae family and its pentacyclic triterpenoid isolated from the root extracts of Tripterygium wilfordii. It plays many important roles in pharmacological actions such as anti-inflammatory, immune modulation, antiproliferative, and proapoptotic activities. According to the traditional Chinese medicine theory, the nature of celastrol is "bitter", "spicy", and "cool". Its functions are to (i) eliminate wind and dampness; (ii) promote blood circulation to remove meridian obstruction as well as (iii) reduce swelling and pain. Several important clinical indications of celastrol focus on vasculitis, eczema, dermatitis, and psoriasis [2].

The accumulated research evidence of celastrol on atopic dermatitis including He L et al. discovered the celastrol induced the up-regulation of IL-37 through the activation of extracellular regulated kinase (ERK) and p38 microtubule associated protein kinase (MAPK) pathways since IL-37 was a member of the IL-1 cytokine

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family and acted as an inhibitor of atopic dermatitis. This suppressed the mRNA in IL-37 and its protein which were the essential inflammatory factors [3]. Kim Y et al. indicated that celastrol decreased the phosphorylation of extracellular regulated kinase (ERK) and its activity. It inhibited the interaction between FcepsilonRIgamma and protein kinase C delta (PKCdelta) on the immunoglobulin Fc epsilon receptor I, as celastrol showed an inhibitory effect on skin inflammation induced by phorbol myristate acetate (PMA). It bound to an extracellular regulated kinase (ERK) and suppressed FcepsilonRI signaling for exerting an anti-inflammatory effect [4].

Some traditional Chinese medicine formulations of celastrol on the skin in clinical studies including Huang Y et al. developed a skin nursing liquid contains Chinese herbal medicines such as Tripterygii Wilfordii, Cortex Phellodendri, Radix Fructus Cnidii, Herba Crotalariae sessiliflorae, Cortex Pseudolaricis, Aloe and Calamina combined with nanometer magnetic materials to make the skin nursing liquid formulation. The ratio of Chinese herbal medicines and nanometer magnetic materials were 0.1-1 or 0.5-4 or 2-8: 30, ground and mixed by water up to 100 mL. Its functions were to kill bacteria, reduce inflammation, and repair the damaged skin. This skin nursing liquid was effective for the patient who had psoriasis. It was eliminated the skin disorder around 80% in 40 days even neurodermatitis. Other slight symptoms for skin were recovered within 2-3 days [5]. Lu J et al. reported a mixture of Chinese herbal medicines such as 20% to 30% of Tripterygium Wilfordii, 10% to 20% of Mint, 30% to 40% of Baical Skullcap root, and 30% to 40% of Phellodendron to make a vaseline ointment cream based on the proportion of 3:7 for dermatosis. Its function was to relieve inflammation and effective for the patients in 3 to 10 days after treatment [6].

The above information demonstrates that a traditional Chinese compound, “celastrol” and its formulations are the potential candidate in the treatment of atopic dermatitis. Compared with western medicine, it is natural and long-lasting for enhancing skin recovery and repair.

Conflict of interests

The authors have no conflicts of interest to disclose.

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