LETTERS TO THE EDITOR

Efficacy of adenosylcobalamin in relieving xerotic pruritus symptoms of atopic dermatitis

Editor

Multiple treatment modalities have been used in the treatment of atopic dermatitis (AD), although long-term use of corticosteroid has been associated with various adverse effects. Accordingly, a significant research effort now exists to identify steroid-sparing alternative therapeutic modalities, with topical vitamin B_{12} (adenosylcobalamin) potentially representing one specific agent. Emerging data indicate that cobalamin may prevent AD flares by reducing the production of nitric oxide (NO) and proinflammatory cytokines.[1–3]

To assess the efficacy of topical adenosylcobalamin in AD patients, we recruited the children between 2 and 12 years old diagnosed with AD. During 8-week treatment period, each patient was instructed to apply a vitamin B_{12}-containing gel to all AD-affected area twice daily. The adenosylcobalamin gel was manufactured by HanAll BioPharma (Seoul, Korea). Specifically, the gel contains 0.07% of adenosylcobalamin by weight concentration in a moisturizer base.

To evaluate the therapeutic efficacy, the following values were measured at baseline and 4 and 8 weeks after initial treatment: SCORing Atopic Dermatitis (SCORAD) index, transepidermal water loss (TEWL), skin hydration level, skin surface temperature and pH level. Patients rated their satisfaction after ending therapy using 5-grade scoring system. The overall degree of improvement was evaluated using the quartile grading scale.

A total of 22 patients (12 male, 10 female, mean age = 7.09 ± 2.72) were enrolled in the study. All 22 patients exhibited some degree of improvement, as defined by SCORAD score, investigator-assess improvement score and patient-rated satisfaction score. The mean SCORAD value improved significantly from 21.95 at baseline to 13.92 at week 4 and to 6.56 at week 8 (Fig. 1a) ($P < 0.05$). The mean skin hydration value at baseline was 17.02, which also significantly increased to 36.68 at week 4 and to 47.91 at week 8 (Fig. 1b) ($P < 0.05$). The average TEWL value significantly improved from 22.41 at baseline to 14.44 at week 4 and 11.46 at week 8 (Fig. 1c). The mean skin surface temperature and pH did not show statistically significant change (data not shown). Overall improvement was rated as excellent in 5 of 22 (22.73%) patients, marked in 11 of 22 (50.0%) patients and moderate in the remaining 6 patients (Fig. 2). Patient satisfaction scores indicate that 11 of 22 patients were highly satisfied with the therapy, whereas the other 11 were moderately satisfied.

The optimal treatment algorithm for AD has not been well defined. Currently, topical corticosteroids represent the baseline therapy for AD, whereas steroid abuse can result in skin atrophy, thinning of the epidermis and striae distensae.[4] Accordingly, new treatment modalities for AD are clearly needed, with substantial research now directed at identifying new efficacious non-steroidal topical agents. In previous *in vivo* studies, we demonstrated the preventative effects of this agent against AD symptoms.[5] Similarly, this study also shows that topical adenosylcobalamin gel effectively improved skin lesions and subjective symptoms in AD patients.

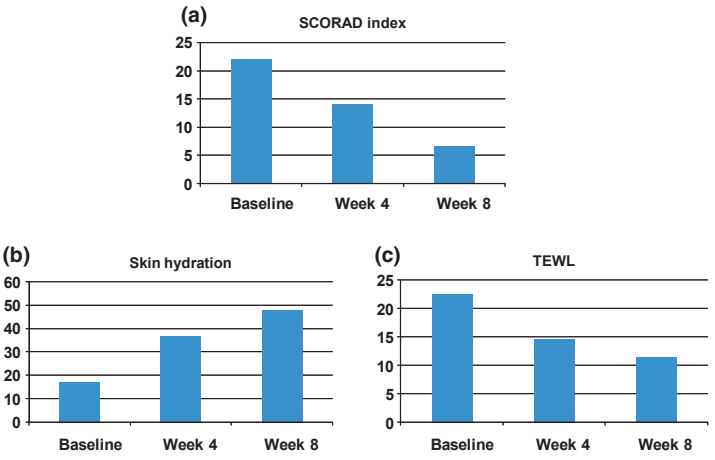

Figure 1 (a) The changes in SCORAD index values. (b) The changes in skin hydration values as assessed by corneometer. (c) The changes in patient transepidermal water loss (TEWL) values.

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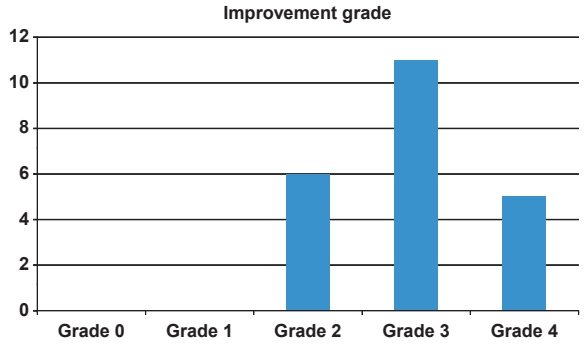

Figure 2 The overall degree of improvement assessed by investigator. (0 = no change (0%), 1 = mild improvement (0–25%), 2 = moderate improvement (26–50%), 3 = marked improvement (51–75%), 4 = excellent improvement (76–100%)).

Although unclear, the proposed therapeutic mechanism of action of the adenosylcobalamin gel may occur via an anti-inflammatory mechanism. Lesional skin from AD has been shown to express increased levels of inducible nitric oxide synthase (iNOS),[6] which may represent a potential trigger for AD symptoms.[7] Vitamin B_{12} has previously been demonstrated to suppress the production of many inflammatory cytokines,[3] many of which stimulate iNOS activation. In turn, iNOS increases NO production and may induce many symptoms associated with AD, including vasodilatation, erythema and pruritus.

In conclusion, although topical treatment with adenosylcobalamin gel represents an effective therapy for AD patients, its exact pharmacologic effect on inflammatory skin conditions is still unclear. Further randomized placebo-controlled studies with larger sample size are necessary. And we discuss the possibility of non-steroid topical treatment with topical adenosylcobalamin as a candidate for AD therapy modality.

H.K. Kim,[1] B.J. Kim,[1,*] J.M. Suk,[2] J.O. Park,[2] S.W. Jung,[2] S.O. Sun,[3] J. Koo,[3] S.I. Lee[3]

[1]Department of Dermatology, Chung-Ang University College of Medicine, Seoul, Korea
[2]P&K Skin Research Center, Seoul, Korea,
[3]Hanall Biopharma Co., Ltd., Seoul, Korea
*Correspondence: B.J. Kim.
E-mail: beomjoon@unitel.co.kr

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Interest of confocal laser scanning microscopy for the diagnosis and treatment monitoring of demodicosis

Editor

Demodex folliculorum is saprophyte of the skin, located within the ostia of the sebaceous follicles. There is long-standing suspicion that an abnormal proliferation of Demodex can play a pathogenic role in rosacea and other inflammatory conditions.[1–3] A recent study of Sattler *et al.*[4] fore shows the interest of confocal laser scanning microscopy (CLSM) in the non-invasive detection and quantification of Demodex. In their study, Sattler *et al.*[4] suggest that CLSM can detect this abnormal proliferation, but they did not compare CSLM with parasitological examination, the gold standard for Demodex detection.

In our study, we examined 12 patients (mean age: 44 years, [19–65 years], five males and seven females) with facial dermatoses: 11 with papulopustular rosacea and one with pityriasis folliculorum. Ten control subjects (mean age: 41 years, [24–62 years], three men and seven females), without facial dermatosis were also studied. CLSM examination was carried out over an area of 4 × 4 mm, allowing the analysis of 30–100 hair follicles (mean = 51). In contrast to healthy hair follicles, the presence of Demodex manifested as the presence of one or several roundish or elongated cone-shaped grey structures, often surrounded by a peripheral bright ring, within dilated follicles (Fig. 1). Two independent investigators calculated the percentage of infected follicles. A parasitological examination by skin scraping and direct microscopic examination of fresh secretions were carried out simultaneously by a third investigator.

The mean percentage of follicles containing Demodex was 22% [0–66%] in the patient group vs. 1% [0–2%] in controls ($P = 0.0018$, Mann–Whitney–Wilcoxon test). CLSM

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