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Crisaborole in Atopic Dermatitis

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Dear Editor,

One of the most prevalent chronic inflammatory skin diseases is atopic dermatitis (AD), which is associated with pruritus. It generally manifests as dry skin, eczematous lesions, and even lichenification over extensor or flexor surfaces depending on the age (1). Since it is a prolonged condition, its management is comprehensive and includes regular moisturization of the skin, bleach baths, and avoidance of any triggering factors (2).

The research employed the following search engines: Google Scholar, ScienceDirect, PubMed, and Scopus. A comprehensive literature review on crisaborole in AD was conducted using content analysis and comparative analytic techniques. A total of 50 English-language publications were selected, each meticulously examined for relevance to the topic.

Topical corticosteroids are the cornerstone of therapy. Corticosteroids with low to medium potencies are recommended for both maintenance treatment and acute flares. Topical calcineurin inhibitors (tacrolimus ointment, 0.1% or 0.03%) are part of second-line therapy. These are considered when using topical corticosteroids causes complications and when AD affects sections of the skin that are thinner, like the face and intertriginous regions (3).

Crisaborole 2% ointment is a new molecule that was approved by the US Food and Drug Administration in 2016 for the topical treatment of mild to moderate AD in individuals two years of age and older (4). It is a PDE4 inhibitor that raises cAMP levels and contains boron. This molecule acts as a pro-inflammatory cytokine-negative regulator, lowering the levels of inflammatory mediators like IL-4 and IL-13, as well as their consequences in AD (5).

Crisaborole is available as an ointment formulation and is advised to be applied twice daily over the affected areas. There are no recommendations for dosage adjustments for patients with renal or hepatic impairment, among other specific groups (4). Hypersensitivity reactions, such as contact urticaria, irritation, discomfort, burning, and/or stinging at the application site, are some of the minor side effects attributed to the use of crisaborole (6). Clinical trials have not reported any significant adverse consequences.

In two phase III randomized, double-blind, vehicle-controlled trials, the safety and effectiveness of crisaborole ointment were assessed in patients above 2 years of age with mild-to-moderate AD, as determined by an investigator's static global assessment (ISGA) score. The therapy was administered twice a day for 28 days. In each study, a notably higher proportion of patients in the crisaborole group met the primary goal, which is the achievement of an ISGA score. In trial 1, 32.8% of patients receiving crisaborole attained a successful ISGA score compared to 25.4% in the vehicle group ($P = 0.038$). The rates in the second study were 31.4% and 18.0%, respectively ($P < 0.001$). In the first study, 51.7% and 40.6% of patients ($P = 0.005$) achieved clear or almost clear scores in the crisaborole and vehicle groups, respectively, whereas in the second study, 48.5% of patients achieved the same result compared to 29.7% ($P < 0.001$). The comparison group did not observe the

same rate of improvement in pruritus or achievement of the primary goal as the crisaborole group (7).

A published meta-analysis of seven double-blind randomized clinical trials treating mild-to-moderate AD (n = 1869) found that topical phosphodiesterase 4 inhibitor significantly decreased lesions and improved the response rate to clear or nearly clear skin when compared to topical vehicles (8).

In an evidence-based review article, a consensus statement was formed for the use of crisaborole in Indian patients with AD. It stated that crisaborole is a good treatment option for mild to moderate AD in the maintenance phase. Since it is a non-steroidal compound, it can help reduce the requirement for topical steroids, thus addressing steroid phobia in parents and clinicians. Additionally, it was noted that crisaborole can improve the quality of life by decreasing pruritus in AD patients (9).

In conclusion, 2% crisaborole ointment is a new topical treatment option that is both effective and generally well tolerated for the treatment of mild to moderate AD in patients above two years of age. It has the potential to treat this patient population effectively over the long term without posing the safety risks associated with other topical anti-inflammatory agents currently on the market. However, more studies with larger population sizes should be conducted to understand its effectiveness in Indian patients with AD. Moreover, larger studies should be conducted to examine the effect of crisaborole in various dermatoses in the future.

Footnotes

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