Silicone Barrier Cream in treatment of Atopic Dermatitis: A Case Report and Literature Review

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INTRODUCTION

Atopic dermatitis (AD) is a common skin condition that affects many individuals with an increasing prevalence [1]. The typical course of management for the treatment of AD is to use topical treatment in mild cases of AD and to progress to systemic treatment for severe cases of AD in a stepwise manner [2]. Topical treatments include emollients and pharmacological options such as topical corticosteroids, calcineurin inhibitors, phosphodiesterase-4 (PDE4) inhibitors, and local anesthetics [2]. Although these are mainstay treatments for AD, the use of silicone barrier cream in addition to topical treatments is a novel idea. There are many properties of silicone that suggest it would be very effective in improving the symptoms of AD. One way to utilize silicone is with a wet pajama, or wet wrap [3]. Herein, we report a case of a patient with moderate-to-severe AD treated with a proprietary silicone base and discuss the beneficial properties of silicone that may enhance the treatment of AD in the future.

CASE DESCRIPTION

- A 22-year-old female patient, with a long history of moderate-to-severe AD since childhood, presents with erythromedicatous dermatitis, accompanied with lichenification of the flexures as well as secondary skin manifestations such as excoriations and fissures from mechanical irritation. Affected body surface area is 70% and 24-hour average itch numerical rating scale (NRS) is 10.
- Despite regular use of topical therapy, the patient is not responding. The patient has no known allergies or chronic medical conditions, and no familial history of allergies or eczema. The patient is taking no other medications.

Discussion

- The use of a silicone proprietary base can provide many benefits for patients. Silicone is a chemical molecule that has a long history for its benefits in treating scars and promoting wound healing. The primary ingredients for topical silicone formulations are dimethyl silicone, a silicone cross polymer, cyclopentasiloxane, dimethicone, and a type of oil.
- The key qualities of silicone that provide topical benefit can be attributed to its ability to uphold hydration, maintain occlusion, facilitate oxygen diffusion, decrease microbial penetration, assist in transdermal drug delivery, and promote soothing qualities.

<table>
<thead>
<tr>
<th>Silicone Property</th>
<th>Mechanism of Action</th>
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<tr>
<td>Hydration and Occlusion</td>
<td>Decreases loss of water and restores hydration to the skin</td>
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<tr>
<td>Oxygen Diffusion</td>
<td>Allows sufficient oxygen permeation to promote healing</td>
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<tr>
<td>Anti-Microbial</td>
<td>Can decrease risk of secondary infection</td>
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<tr>
<td>Transdermal Drug Delivery</td>
<td>Adhesive, biocompatible, and can crosslink to medication</td>
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<tr>
<td>Soothing Properties</td>
<td>Slippy texture, painfree removal, and cooling sensation</td>
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</tbody>
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The effect of Silicone Wet Pajama Therapy and Topical Mometasone on AD Affected Body Surface Area and 24 Hour Average-Itch Numerical Rating Scale

Conclusion

- The introduction of a silicone proprietary base in combination with a topical steroid is a novel form of the treatment that has been found to be clinically beneficial in this case report.
- It is necessary to demonstrate the efficacy and safety of silicone for the treatment of AD, namely with the wet pajama.

References