

# Focus on the role of emollients in atopic dermatitis

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## Overview of the disease

The Oxford dictionary defines the word 'atopic' as '...a form of allergy in which a hypersensitivity reaction such as eczema or asthma may occur in a part of the body not in contact with the allergen.'<sup>1</sup>

Atopic dermatitis (AD), commonly known as eczema, is a chronic inflammatory disease of unknown origin, that is characterised by eczematous, intensely pruritic lesions, dry skin (xerosis), as well as lichenification (thickening of skin).<sup>2,3</sup> A worsening of the condition (flare) alternates with periods of remission.<sup>4</sup>

Genetic and environmental factors can compromise the epidermal barrier of the skin, contributing to an inadequate skin barrier and the subsequent development of atopic dermatitis.<sup>5,6</sup> Pruritis is an essential diagnostic feature of atopic dermatitis, while early-age onset, genetic history and xerosis reinforce the diagnosis.<sup>2</sup>

AD occurs most frequently in children, although many adults are affected.<sup>2,7</sup> Among paediatric patients with AD, about 60% develop the disease within their first year of life, while about 90% will develop the disease by five years of age.<sup>4</sup> The disease has been shown to be first in a progression of allergic diseases, such as food allergy, asthma and allergic rhinitis.<sup>2</sup>

## Morbidity

The intense itching associated with AD can place an enormous burden on the quality of life in both children and adults.<sup>3,7</sup> An itch-scratch cycle ensues, which leads to inflamed, cracked, and often, infected skin lesions.<sup>6</sup> Sleep-cycles may be disturbed due to the intense itching, leading to work loss in adults and loss of school days for children.<sup>2</sup>

## Assessment

AD in infants usually presents as poorly defined, scaly, erythematous patches mainly on the cheeks, forehead, scalp, and limbs.<sup>2,8</sup> In older children, there is often generalised xerosis, with erythema and scaling around eyes, and symmetrical skin flexural involvement.<sup>2,8</sup> There may be lichenification (especially over bony protuberances, folds of the skin and the forehead).<sup>2</sup>

Adults usually present with more widespread lesions on an erythematous background.<sup>2</sup> A dry, scaly face is often characteristic, as well as xerosis and lichenification. Chronic AD often presents as a 'dirty neck', which is as a result of amyloid deposits in that area.<sup>2</sup>

AD may be classified as **mild, moderate or severe**, depending on the signs and symptoms (Table I).<sup>3,7,9</sup>

**Table I:** Classification of atopic dermatitis

<b>Mild atopic dermatitis</b>	Usually presents with patches of dry skin, infrequent itching and, occasionally, small areas of redness.	Little impact on everyday activities
<b>Moderate atopic dermatitis</b>	Usually presents with patches of dry skin, more frequent itching, occasional broken skin or localised skin thickening.	Moderate impact on sleep and everyday activities
<b>Severe atopic dermatitis</b>	Widespread areas of dry skin, with incessant itching and redness. Skin may show signs of thickening, cracking, oozing and pigmentation.	Severe limitation of everyday activities and sleep

Adapted from The Eczema Society of Canada. Atopic dermatitis: patient insights report<sup>9</sup>

## Management

Overall, the mainstay of AD therapy is the use of emollients and topical corticosteroids. As second-line therapy, or where the sensitive facial areas are involved, the use of topical calcineurin inhibitors, e.g. tacrolimus and pimecrolimus, may be considered. In moderate to severe cases not responding to optimal topical therapy, phototherapy or immunosuppressant therapy may be indicated.<sup>2,7</sup>

A compromised skin barrier can lead to excessive moisture loss and allows for the entry of allergens and irritants.<sup>10</sup> This dysfunction of

the skin barrier has been shown to be pivotal in the commencement and advancement of AD.<sup>6</sup>

The goal of AD therapy is three-fold:<sup>3,7</sup>

- Reduce the signs and symptoms of flares (pruritis and dermatitis)
- Prevent flares or increase intervals between flares
- Provide ongoing management

The cornerstone of treatment for mild AD is hydration of the skin with topical emollients.<sup>8</sup> Daily, full-body emollient therapy early in life, has been shown to prevent atopic dermatitis by improving the skin barrier and blocking the inflammatory cascade.<sup>6</sup> Studies have also shown an improvement of xerosis when emollients are used regularly as first-line therapy in young children with mild AD.<sup>8</sup>

Therapeutic intervention is necessary to treat flares. However, studies have shown that the daily use of an appropriate emollient can extend the interval between flares.<sup>3</sup>

## Emollients

The term 'emollient' is sometimes used interchangeably with the term 'moisturiser'. Emollient may also refer to a specific ingredient in a moisturiser that is used to soothe the skin.<sup>11</sup>

The active ingredients in moisturisers (emollients) may be classified according to their properties as:<sup>5</sup>

- Occlusive
- Humectant
- Emollient

**Occlusive emollients (e.g. petrolatum, mineral oil, paraffin, silicon):** Form a barrier on the skin to reduce the loss of water from the stratum corneum.<sup>3,10</sup>

**Humectants (e.g. glycerine):** Draw water from the environment and redistribute it over the affected area.<sup>3,10</sup>

**Emollients (e.g. linoleic acid, glyceryl stearate):** Improve the flexibility of the skin, by maintaining the skin's condition ('fills in cracks').<sup>3,10</sup>

The ideal moisturiser should contain a combination of occlusive agents, emollients, and humectants in order to rehydrate and maintain the skin barrier.<sup>3,11</sup>

The preparations with very low water content, such as thick creams and ointments are more effective against xerosis. However, while occlusive emollient bases are preferred, a cream may be more acceptable, as it is less greasy.<sup>3,7</sup>

Regular application of emollients improves skin hydration, and has been shown to restore the skin's barrier, reduce the incidence of flares and reduce the need for topical corticosteroids.<sup>4,10</sup> Emollients are best applied to the body while still damp after a bath or shower to improve the absorption and thereby the efficacy of the emollient.<sup>2,7</sup>

## Focus on the use of Dexeryl® cream in atopic dermatitis

**Dexeryl® cream** is an emollient used to protect the skin and to treat the signs and symptoms of xerosis associated with skin diseases such as atopic dermatitis.<sup>12</sup>

**Dexeryl®** cream contains glycerol, white soft paraffin, liquid paraffin, glycerol monostearate, stearic acid, polydimethylcyclo-siloxane, silicone oil, macrogol 600, trolamin, propyl parahydroxybenzoate, and purified water.

### Mode of action

White soft paraffin and liquid paraffin are occlusive agents that form a hydrophobic film on the skin's surface, preventing the loss of moisture transepidermally.<sup>11,12</sup> White soft paraffin also has a barrier effect against external damage and aids in skin barrier recovery.<sup>5,12</sup> Glycerol acts as a humectant, attracting water vapour to the skin to maintain the balance of moisture, while glycerol monostearate acts as an emollient, smoothing the skin.<sup>5,11,13</sup>

### Uses and precautions

Dexeryl® is used topically by applying a thin layer of cream to the affected area. It may be applied once or twice daily, or more frequently as needed, but not more than six times daily.<sup>12</sup>

Patients allergic to any of the ingredients, particularly to parabens (propyl parahydroxybenzoate-E216), should not use Dexeryl® cream.<sup>12</sup> Rarely, an eczema-like allergic skin reaction may occur with the use of products containing propyl parahydroxybenzoate.<sup>12</sup>

Overall, Dexeryl® cream is an emollient cream that helps to prevent and reduce inflammation in skin conditions, such as atopic dermatitis.<sup>12</sup>

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