OASIS DERMATOLOGY GROUP

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Eczema

Eczema, also known as atopic dermatitis, is a chronic inflammatory skin condition characterized by red, itchy, and dry patches on the skin. It often begins in early childhood, particularly in individuals with a family history of atopic conditions such as asthma, hay fever, conjunctivitis, or food allergies. This condition arises due to a combination of genetic and environmental factors that impair the skin's ability to retain moisture, leading to dryness, inflammation, itching, and, in some cases, secondary infections. The pathophysiology of eczema involves a hyperactive immune response and a genetic predisposition to skin barrier dysfunction, as seen in conditions like ichthyosis vulgaris.

Risk Factors

Eczema is influenced by both internal and external factors. Internal factors include a family history of atopic diseases and genetic mutations that affect the skin's barrier function. A key genetic defect in atopic dermatitis is mutations in the *filaggrin* gene, which leads to impaired skin barrier function and increased skin permeability. External triggers such as allergens (e.g., pollen, dust mites), irritants (e.g., soaps, detergents), infections (e.g., Staphylococcus aureus), and climate conditions (dry or cold weather) exacerbate the condition.

Management and Treatment Options

The management of eczema requires a tailored approach that identifies and minimizes specific triggers for each patient. Treatment focuses on maintaining skin hydration, controlling inflammation, and preventing infection. A combination of emollients, topical therapies, and in some cases, systemic treatments are employed to manage the condition.

Hydration and Skin Care

The primary goal in treating eczema is to restore the skin's moisture barrier. This involves the application of moisturizers that trap water in the skin. While dry skin in eczema patients is not due to a lack of oil, it is due to an inability to retain moisture. After soaking the affected areas in lukewarm water for 15–20 minutes (avoiding hot water that can exacerbate dryness), the skin should be gently patted dry with a soft towel, and a thick moisturizing cream or ointment should be applied immediately while the skin is still damp. Emollients such as Eucerin Cream, Cetaphil Cream, and Moisturel Cream are effective options for maintaining skin hydration.

Topical Corticosteroids

Topical corticosteroids remain the cornerstone of treatment for managing acute eczema flares due to their potent anti-inflammatory and antipruritic properties. These medications are typically applied directly to the affected areas after moisturizing. It is important to use steroids judiciously, as long-term or excessive use can lead to skin thinning (atrophy), depigmentation, and other adverse effects. Hydrocortisone ointment is often used for infants and young children or for eczema in skin folds, while more potent steroids are used for other body areas under medical supervision. Topical steroids should not be applied to thin-skinned areas such as the face, neck, axilla, and groin, where the risk of side effects is higher.

Topical Non-Steroidal Immunomodulators

Topical immunomodulators (TIMs), such as tacrolimus (Protopic) and pimecrolimus (Elidel), provide an alternative to steroids for managing eczema, particularly in sensitive areas such as the face and eyelids. These agents work by inhibiting T-cell activation and inflammatory cytokine release, thus reducing inflammation without the risk of skin thinning associated with steroids. TIMs can be used in patients aged 2 years and older, though they are typically reserved for patients who cannot tolerate or are not responding to topical steroids.

Crisaborole (Eucrisa)

Crisaborole (Eucrisa) is a topical phosphodiesterase 4 (PDE4) inhibitor approved for mild to moderate eczema. By blocking the PDE4 enzyme, crisaborole reduces the production of inflammatory cytokines, thus controlling eczema symptoms. It is safe for long-term use and can be applied twice daily to affected areas, starting from the age of 3 months. While it is generally well-tolerated, patients may experience mild burning or stinging upon application, which typically resolves with continued use.

Phototherapy

Phototherapy, specifically narrowband UVB and PUVA (psoralen plus UVA), has shown efficacy in treating chronic eczema that is resistant to other treatments. UVB therapy is typically administered three times per week under professional supervision, and it works by reducing inflammation and modulating the immune response. However, prolonged use carries the risk of skin damage, including sunburn and an increased risk of skin cancer.

JAK Inhibitors

Janus kinase (JAK) inhibitors represent a newer class of oral and topical therapies for moderate to severe eczema. JAK inhibitors work by inhibiting the activity of cytokines involved in immune system overactivity, thus reducing inflammation. Approved JAK inhibitors for eczema include:

- *Abrocitinib (Cibinqo)* – Oral tablet for adults
- *Upadacitinib (Rinvoq)* – Oral tablet for adults and adolescents aged 12 years or older

- *Ruxolitinib (Opzelura)* – Topical cream for adults and children aged 12 years or older

These medications are typically reserved for patients who have not responded to traditional therapies and are effective in controlling symptoms without the side effects associated with long-term steroid use.

Biologic Medications

Biologic treatments have revolutionized the management of severe eczema. These medications target specific components of the immune system to reduce inflammation. Two major biologics approved for eczema include:

- *Dupilumab (Dupixent)*: A monoclonal antibody that blocks interleukin-4 and interleukin-13 signaling, which are key drivers of inflammation in eczema. It is approved for adults and children aged 6 years and older.
- *Tralokinumab (Adbry)*: Another monoclonal antibody targeting interleukin-13, approved for use in adults.

These biologic treatments are administered via subcutaneous injection and are typically recommended for patients with severe eczema who have not responded to conventional therapies. Though effective, these treatments may be associated with rare side effects, including ocular conditions, so regular monitoring is essential.

Systemic Medications

For patients with severe eczema that does not respond to topical or biologic treatments, systemic medications may be considered. Oral corticosteroids are sometimes used for acute flares but should be minimized due to their potential for severe side effects, including adrenal suppression and exacerbation of eczema upon discontinuation. Other systemic therapies, such as hydroxychloroquine and cyclosporine, may offer short-term relief, but their long-term use is limited by significant side effects, such as kidney toxicity.

Adjunctive Therapies

During acute flares, hospitalization may be necessary to break the cycle of chronic inflammation and address other exacerbating factors. In-hospital treatments may include frequent baths, moisturizing therapy, and the use of wet wraps to enhance the penetration of topical treatments. Wet wraps can be applied using elasticized gauze or damp pajamas, followed by dry pajamas to prevent chilling and improve skin hydration.

Conclusion

Eczema, or atopic dermatitis, remains a challenging condition for both patients and healthcare providers. Advances in treatment, including topical immunomodulators, biologics, and JAK

inhibitors, have provided effective alternatives to traditional therapies like steroids. Personalized treatment plans that incorporate hydration, skin barrier restoration, and careful management of triggers are key to controlling symptoms. With early intervention and appropriate management strategies, most individuals with eczema can achieve significant improvement in their quality of life.

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