

In The Name of God

The role of corticosteroids in skin disease

September 2020



TEHRAN UNIVERSITY
OF
MEDICAL SCIENCES

Janunide®
Desonide



Desonide; The newest corticosteroid available in Iran

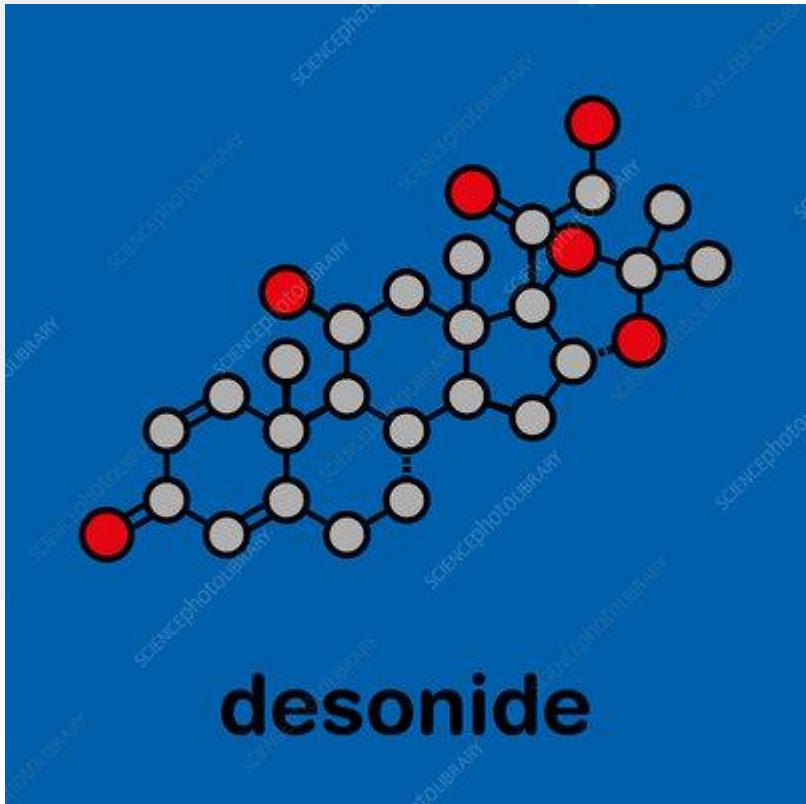
Dr. Atefeh Naeimifar

PhD Candidate of pharmaceutical sciences (TUMS)



TEHRAN UNIVERSITY
OF
MEDICAL SCIENCES





For Dermatitis Treatment



Website: www.januspharma.com
Email: headoffice@januspharma.com

شرکت دانش بنیان زرف اندیشان نوید سلامت (ژانوس)
تهران، خیابان طالقانی، بخش خیابان شهید نادری، شماره ۴۱۵

تلفن: ۸۸۹۶۲۹۸۱ فکس: ۸۸۹۶۲۶۵۳



Desonide



- Desonide is a **synthetic, low-potency corticosteroid** that has been used to treat inflammatory, steroid-responsive **dermatoses** for over 30 years.
- **safety profile** of this topical agent makes it ideal for **patients of all ages**.
- Traditionally, only **creams, ointments and lotions** were available in this potency class; recently, however, novel hydrogel and foam formulations of desonide have been developed.
- These advancements in vehicle technology address the need for **effective, well-tolerated treatments, and may enhance patient compliance and acceptability**.
- Pregnancy category: **C**



Indication



- Desonide is a **Class VI, low-potency corticosteroid used for the treatment of atopic dermatitis, seborrheic dermatitis, contact dermatitis, psoriasis, eczema and other steroid-responsive dermatoses.**
- Like most topical corticosteroids, desonide has been shown to have **anti-inflammatory, antipruritic and vasoconstrictive properties**



Antipruritic



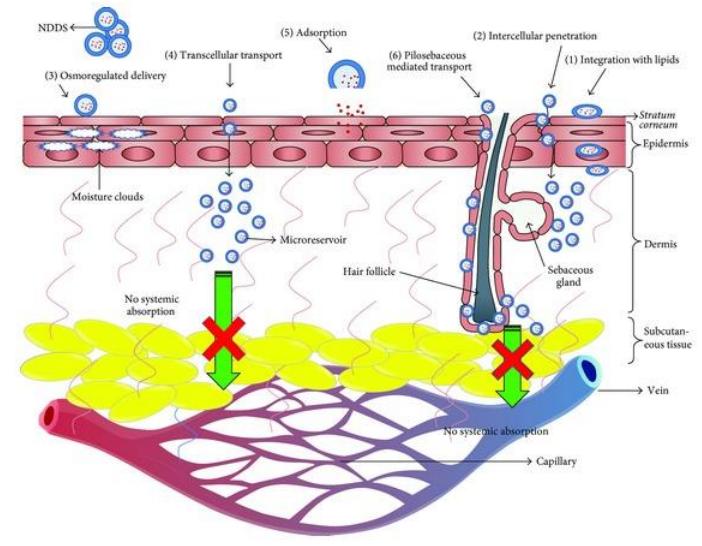
- Recent studies have demonstrated a **rapid improvement** of pruritus in **pediatric patients** using desonide. Two randomized, vehicle-controlled studies involving 582 children with atopic dermatitis demonstrated marked improvement in **pruritus after 4 weeks of twice-daily desonide hydrogel** application.
- **Pruritus scores** in the desonide group decreased from **76% at baseline to 12% following 4 weeks of treatment**.
- The vehicle group only showed a decrease from **69% at baseline to 41% after treatment**

Pharmacokinetics and absorption

- Several factors affect the pharmacokinetics of topical corticosteroids. The **molecular structure**, the **vehicle** used for delivery and the **state of the patient's skin at the site of application** all play important roles in the overall efficacy of the medication.
- Most topical steroids share a hydrocortisone backbone, and their differences lie in the addition or alteration of various functional groups or double bonds. These subtle changes can have significant impact on the **absorption and activity of the molecules**.



Pharmacokinetics and absorption



- The **vehicles** used to deliver topical steroids can greatly affect the absorption and distribution of corticosteroids, and may offer direct therapeutic effects as well.
- **Penetration** of topical corticosteroids is also affected by the **condition** of the patient's skin. **Increased** penetration is seen in areas of **cutaneous inflammation and impaired barrier function**.
- **Well-moisturized skin** also demonstrates **higher penetration** of these topical treatments when compared to xerotic skin.



Formulation



- Desonide comes in **ointment, cream, lotion, gel and foam formulations**
- Desonide, the active ingredient, has a **molecular weight of 416.52 kD**
- is a **white, odorless powder that is practically insoluble in water, sparingly soluble in ethanol and in acetone, and soluble in methanol and chloroform**

Desonide Formulations

Brand name	Form	Desonide concentration
Desocort®	Cream	0.5 mg/g
DesOwen®	Cream	0.5 mg/g
Desocort®	Ointment	0.5 mg/g
DesOwen®	Ointment	0.5 mg/g
Desocort®	Lotion	0.5 mg/g
DesOwen®	Lotion	0.5 mg/g
LoKara®	Lotion	0.5 mg/g
Verdeso®	Foam	0.5 mg/g
Desonate®	Gel	0.5 mg/g





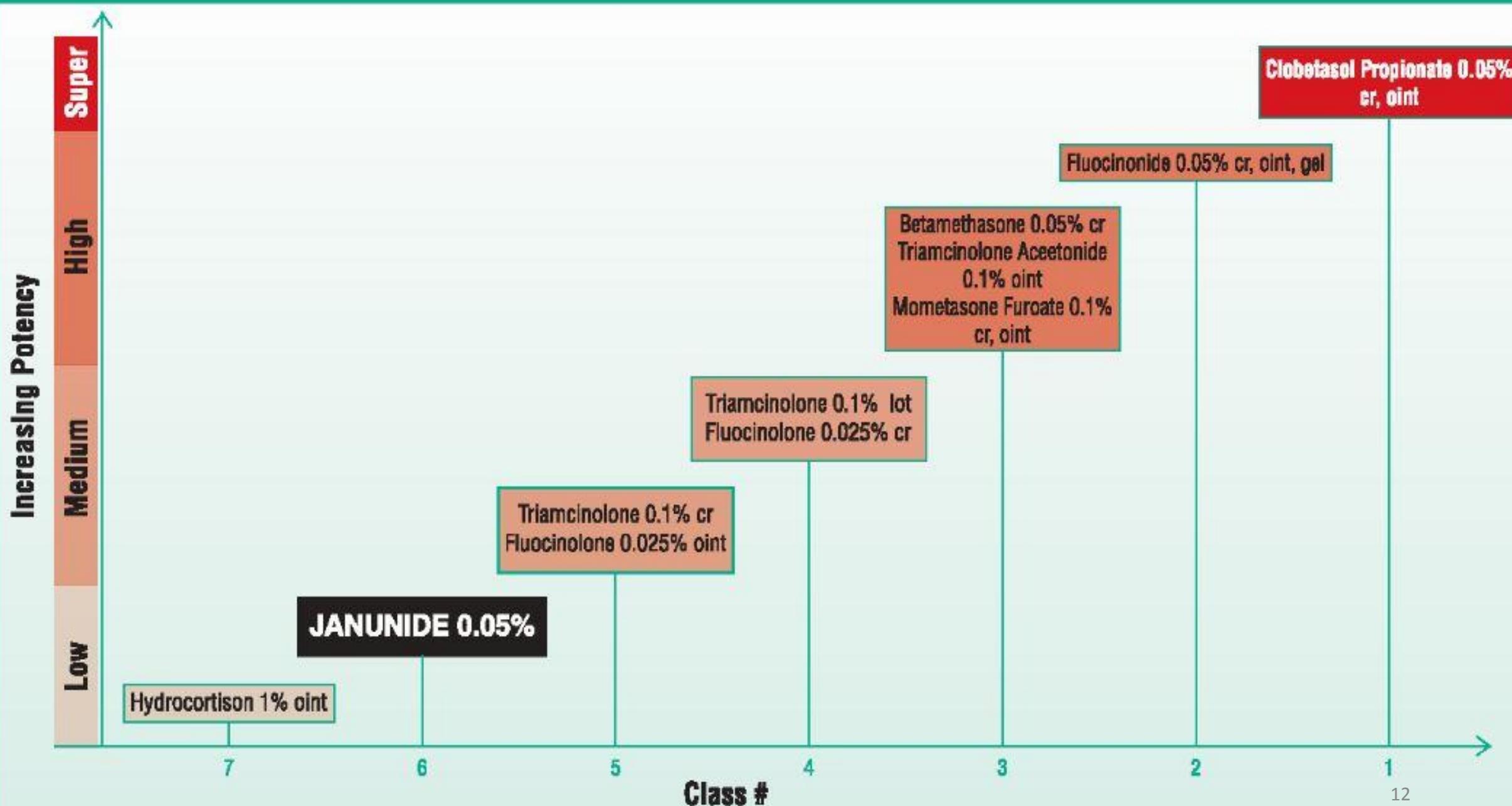
For Dermatitis Treatment



Website: www.januspharma.com
Email: headoffice@januspharma.com

شرکت دانش بنیان ژرف اندیشان توبید سلامت (زانوس)
تهران، خیابان طالقانی، نبش خیابان شهید نادری، شماره ۴۱۵
تلفن: ۸۸۹۶۲۹۸۱ فکس: ۸۸۹۶۲۶۵۳





عوارض جانبی:

بر اساس مطالعات بالینی انجام گرفته، درصد بروز عارضه جانبی با استفاده از این دارو تنها حدود ۱٪ است. شایع ترین عوارض جانبی سوزش، تحریک پذیری و خارش است.

در صورت استفاده طولانی مدت و به مقدار زیاد از دارو ممکن است عارضه نازک شدن پوست، آسیب به عروق خونی سطحی و اثر بر روی غده آдрنال اتفاق بیفتد.

موارد منع مصرف:

- در افراد دارای تب خال، خالکوبی، آبله مرغان، عفونت‌های قارچی، آکنه و آکنه روزاسه منع مصرف دارد.
- در صورت سابقه حساسیت به هریک از اجزای سازنده این دارو، باید از مصرف آن خودداری شود.



زانوناید ۰.۰۵٪ یک کورتیکواستروئید ایمن با قدرت متوسط بوده که به منظور کاهش و تسکین التهاب و خارش ناشی از بیماری‌های پوستی مانند اگزما، پسوریاژیس و ... استفاده می‌شود.

اثربخشی این دارو در درمان اگزما آتوپیک کودکان از پماد هیدروکورتیزون ۱٪ بیشتر بوده است. این دارو در رده C بارداری جای دارد.

نحوه مصرف:

قبل از استفاده از زانوناید، محل مورد نظر را ۲ الی ۳ بار به خوبی شسته و تمیز نمایید. سپس یک لایه‌ی نازک از پماد، ژل یا کرم زانوناید ۲ تا ۳ بار در روز بر اساس شدت ضایعه، بر روی موضع استعمال گردد.

Types of Semi-solid Dosage Forms



- A topical steroid vehicle refers to the **type of base** in which the medication is contained. The most common vehicles are creams and ointments, but topical steroids can also come as **gels, lotions, solutions, and foam.**
- The choice of vehicle is important because **some vehicles are stronger than others.**

Ointment



- An ointment base has some oils such as **petroleum** and little or no water. Many are **preservative-free**.
- Since they are mostly of greasy nature so they **stain cloths**, are generally **poor solvent for most drugs**.
- **Translucent**
- Greasy texture that **persists on the skin surface**
- They **hydrate** the stratum corneum.
- Not easily removed from the skin with water washing
- Work best on **chronic thickened** skin lesions.
- Not recommended for areas with **rashes** that are **acute, vesicular, or weeping**.
- They're **great for dry, scaly skin** or areas with **thick skin like the soles of your feet and the palms of your hands**. because usually absorb topical steroids **more slowly than other parts of the body**.
- **Greater penetration** of medicine than creams, therefore, ointments have a **higher potency** than creams

Cream



- A cream base is a mixture of oils and water and usually contains a **preservative**.
- Consistency and rheological characters depend on whether the cream is w/o or o/w
- Properly designed O/W creams are elegant drug delivery system, **pleasing in both appearance and feel after application**.
- **O/W creams** are **non greasy** and are **rinsable**. They are good for most topical purposes
- White color
- Greasy texture
- Versatile use - can be used on most skin areas
- Has **emollient** properties
- They're especially good **for hairy and wet areas** and are easily applied **without a greasy feel**.
- creams contain **emulsifiers** and **preservatives** which may cause **contact allergy**

Gel



- **Transparent** preparations containing cellulose ethers or carbomer in water or a water-alcohol mixture
- **Clear** color
- they're **easy to apply**
- gels **liquify on contact with the skin, dry and leave a thin film of active medication**
- gels tend to be **drying**
- they are cosmetically acceptable
- Useful for "**wet**" rashes and in scalp areas where other vehicles can mat the hair

Lotion



- a loosely used term that nowadays includes **any liquid preparation** in which inert or active medications are suspended or dissolved
- an **o/w emulsion with a high water content** to give the preparation a liquid consistency can be considered a lotion
- most lotions are **aqueous** or **hydroalcoholic** systems; small amounts of alcohol are added to aid **solubilization** of the active ingredient(s) and **to hasten evaporation** of the solvent from the skin surface
- emulsion type lotions are **usually not drying, depending on the water content** (higher water and/or less oil is more drying)
- lotions are **easy to apply** to large areas
- lotions are suitable for **hairy areas, skin prone to acne, intertriginous areas**

Solutions, Foams

usually contain **oil, water, and other chemicals** and are used on the **scalp**.

- Clear or milky appearance
- Useful for use on the scalp because they **leave no residue**
- Can cause drying



Factors to consider when choosing a topical preparation

- 
- Always consider the effect of the vehicle. An **occlusive** vehicle enhances **penetration** of the active ingredient and improves **efficacy**. The vehicle itself may have a **cooling, drying, emollient, or protective** action. It can also cause side effects by being excessively drying or occlusive.
 - Match the **type** of preparation with the type of **lesions**. For example, avoid greasy ointments for acute weepy dermatitis.
 - Match the **type** of preparation with the **site** (e.g., gel or lotion for hairy areas).
 - Consider **irritation** or sensitization potential. Generally, ointments and w/o creams are less irritating, while gels are irritating. Ointments do not contain preservatives or emulsifiers if **allergy** to these agents is a concern.

Safety



- Despite these concerns regarding local and systemic adverse effects of topical corticosteroids, desonide has been shown to have a **low side-effect profile** in multiple studies.
- A pharmacovigilance program initiated by Galderma in 1992 collected reports of adverse events associated with topical desonide over 9 years. The program collected **62** reports.
- There were **no serious reactions** directly attributed to desonide treatment and the majority of events reported were classified as expected local reactions.
- **Skin irritation** was the most common complaint and included **burning, pruritus, erythema, swelling, sensitive skin, dry skin and blisters**.
- Additional adverse events were rare, and included **scars on the face, bleaching of the skin around the treatment area, and topical corticosteroid-induced acne**.

Atrophy

- Jorizzo *et al.* found that children using desonide 0.05% ointment twice daily showed no signs of cutaneous atrophy after 5 weeks of treatment.
- In a study by Hebert, there were no reported cases of skin atrophy in 425 subjects treated with desonide hydrogel



Burning



- Jorizzo *et al.* (113 patients) report that **any stinging or burning sensations** noted in their study were slight.
- In the study by Hebert, the incidence of application-site burning was **1%** in the desonide hydrogel group, which was not higher than that reported in the vehicle group

Telangiectasia

- A single case in which telangiectasias appeared at the application site was reported in the study by Hebert (425 patients)



Acne



- **One case report of acne associated with desonide use was identified. A 2-year-old girl developed topical corticosteroid induced acne after using a regimen of clotrimazole 1%, betamethasone 0.05% cream and desonide 0.05% cream**



Bleaching

- No reports of desonide-induced skin bleaching have appeared in the literature.

Non-improvement/worsening

- The Galderma reported five cases in which patients experienced exacerbation of disease, described as worsening redness of the skin.

Ophthalmologic



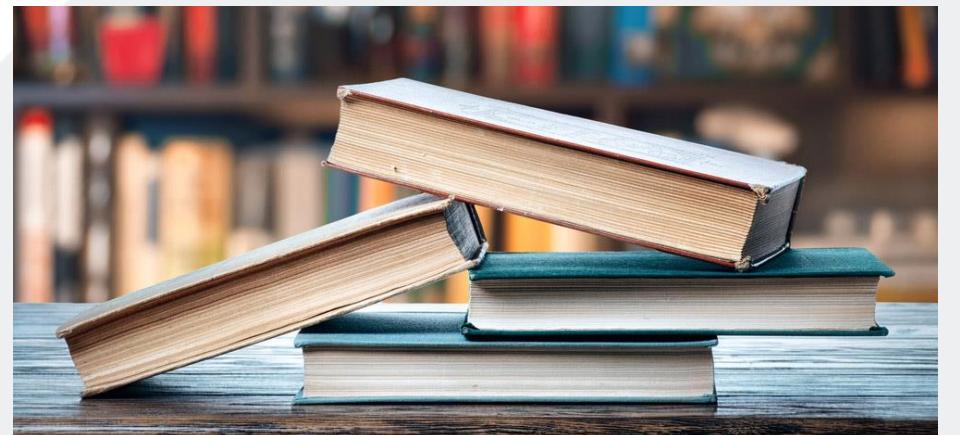
- Three cases of eye irritation were reported in the Galderma surveillance program.
- One patient experienced eye swelling and facial edema following application of desonide to the chest.
- A second patient developed iritis after application of desonide cream under the eyes, and
- The third developed burning, irritated eyes after application of desonide cream.
- Cataracts have been reported in association with topical corticosteroid use but none have been reported in association with desonide specifically.

Conclusion



- Desonide is a **low-potency** topical steroid used to treat **atopic dermatitis, seborrheic dermatitis, contact dermatitis, psoriasis and eczema**.
- The **efficacy** of desonide is attributed to its **vasoconstrictive, anti-inflammatory and antipruritic properties**.
- The incidence of **adverse effects** is **low**, and multiple trials including trials on children have shown an **absence of adrenal suppression** after treatment with desonide ointment, hydrogel and cream formulations.
- In addition to exhibiting remarkable efficacy and safety profiles, desonide is available **ointment, cream, lotion, gel and foam preparations**.
- The more recently developed **gel and foam** formulations address the need for improved patient **tolerability**, and should **enhance patient adherence to steroid treatment regimens**

Bibliography



- Stahn C, Lowenberg M, Hommes DW, Buttgereit F. Molecular mechanisms of glucocorticoid action and selective glucocorticoid receptor agonists. *Mol Cell Endocrinol* 2007 ; 275 : 71 -8
- Sturtz RP, Rau RC. Contact dermatitis to desonide. *Arch Dermatol* 1983 ; 119 : 1023
- Hernandez N, Assier-Bonnet H, Terki N, Revuz J. Allergic contact dermatitis from propyl gallate in desonide cream (Locapred). *Contact Dermatitis* 1997 ; 36 : 111
- Rivara G, Tomb RR, Foussereau J. Allergic contact dermatitis from topical corticosteroids. *Contact Dermatitis* 1989 ; 21 : 83 -91
- Wong VK, Fuchs B, Lebwohl M. Overview on desonide 0.05%: a clinical safety profile. *J Drugs Dermatol* 2004 ; 3 : 393 -7
- Brodell RT, O'Brien MJ Jr. Topical corticosteroid-induced acne. Three treatment strategies to break the 'addiction' cycle. *Postgrad Med* 1999 ; 106 : 225 -6, 229
- Freeman S, Howard A, Foley P, et al. Efficacy, cutaneous tolerance and cosmetic acceptability of desonide 0.05% lotion (DesOwen) versus vehicle in the short-term treatment of facial atopic or seborrheic dermatitis. *Australas J Dermatol* 2002 ; 43 : 186 -9
- Lebrun-Vignes B, Legrain V, Amoric J, Taieb A. Comparative study of efficacy and effect on plasma cortisol levels of micronised desonide cream 0.1 p. 100
- Thalen A, Brattsand R, Andersson PH. Development of glucocorticosteroids with enhanced ratio between topical and systemic effects. *Acta Derm Venereol Suppl (Stockh)* 1989 ; 151 : 11 -9 ; discussion 47-52



THANK YOU FOR YOUR ATTENTION



W W W . A R G A N O . I R



TEHRAN UNIVERSITY
OF
MEDICAL SCIENCES

