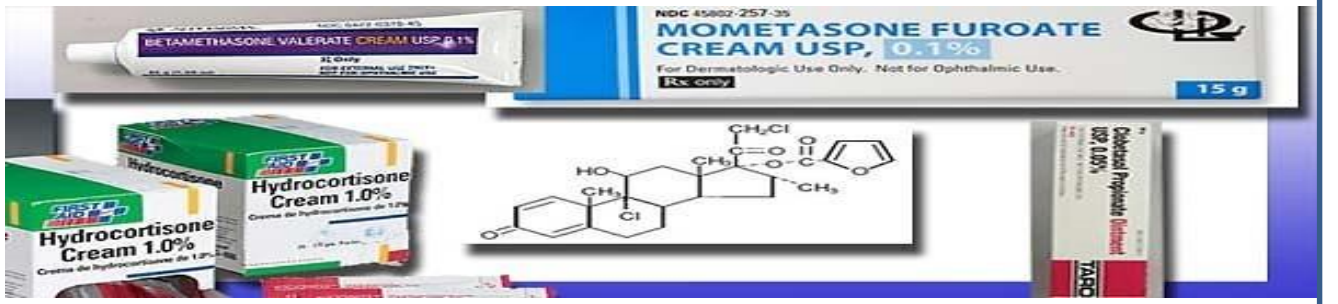

Topical Corticosteroids

Non-Prescription Drugs and Parapharmaceuticals

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Introduction

When prescribing topical steroids, it is important to consider the diagnosis as well as steroid potency, delivery vehicle, frequency of administration, duration of treatment, and side effects. The usefulness and side effects of topical steroids are a direct result of their anti-inflammatory properties.

Choosing topical corticosteroids

- Topical corticosteroids are one of the oldest and most useful treatments for dermatologic conditions. There are many topical steroids available, and they differ in potency and formulation.

- Successful treatment depends on an accurate diagnosis and consideration of the steroid's delivery **vehicle**, **potency**, **frequency** of application, **duration** of treatment, and **side effects**.

- Although use of topical steroids is common, evidence of effectiveness exists only for select conditions, such as psoriasis, eczema, atopic dermatitis, acute radiation dermatitis

Choosing topical corticosteroids

- Clinicians unfamiliar with topical corticosteroids find them a challenge to use, due to the numerous types, strengths, generic versus brand name formulations, and the wide variety of ways to use the products

Table 1. Conditions Treatable with Topical Steroids

High-potency steroids (groups I to III)
Alopecia areata
Atopic dermatitis (resistant)
Discoid lupus
Hyperkeratotic eczema
Lichen planus
Lichen sclerosus (skin)
Lichen simplex chronicus
Nummular eczema
Poison ivy (severe)
Psoriasis
Severe hand eczema

Medium-potency steroids (groups IV and V)
Anal inflammation (severe)
Asteatotic eczema
Atopic dermatitis
Lichen sclerosus (vulva)
Nummular eczema
Scabies (after scabicide)
Seborrheic dermatitis
Severe dermatitis
Severe intertrigo (short-term)
Stasis dermatitis

Low-potency steroids (groups VI and VII)
Dermatitis (diaper)
Dermatitis (eyelids)
Dermatitis (face)
Intertrigo
Perianal inflammation

Topical steroids

- Topical steroid preparations are divided into categories according to how strong or potent they are.

- The **potency** of topical steroids is determined by the amount of vasoconstriction (narrowing of the blood vessels) they produce. It also relates to the degree to which the topical steroid inhibits inflammation, and its potential for causing side effects

Topical Steroids

- Patients should know:

1. Which corticosteroid to apply, i.e. using the right potency and formulation
2. Where on the body to apply it
3. When to apply it, i.e. when to start treatment and how long to use it for.
4. How much to apply

Table 1. Topical Corticosteroids for Atopic Dermatitis in Adolescents

Class	Generic
Very High Potency (I)	Betamethasone dipropionate augmented 0.05% (ointment) Clobetasol propionate 0.05% (cream and ointment)
High Potency (II)	Betamethasone dipropionate 0.05% (ointment) Desoximetasone 0.25% (cream) Fluocinonide 0.05% (cream and ointment) Mometasone furoate 0.1% (ointment)
High Potency (III)	Betamethasone dipropionate 0.05% (cream) Betamethasone valerate 0.1% (ointment) Fluticasone propionate 0.005% (ointment)
Mid Potency (IV)	Fluocinolone acetonide 0.025% (ointment) Mometasone furoate 0.1% (cream) Triamcinolone acetonide 0.1% (cream)
Mid Potency (V)	Betamethasone valerate 0.1% (cream) Fluocinolone acetonide 0.025% (cream) Fluticasone propionate 0.05% (cream)
Low Potency (VI)	Alclometasone dipropionate 0.05% (ointment) Clobetasone butyrate 0.05% (cream) Desonide 0.05% (cream and ointment)
Low Potency (VII)	Hydrocortisone or hydrocortisone acetate 1% (cream and ointment) Hydrocortisone aceponate 0.127% (cream)

Source: Reference 11.

VEHICLES AND FORMULATIONS

- Topical corticosteroids are available in a variety of vehicles and formulations.
- Vehicles should provide the rapid delivery of the drug to the stratum corneum and into the lower layers of the skin.

- They should be easy to apply and cosmetically acceptable

VEHICLES AND FORMULATIONS

Topical therapy: Formulation selection for specific body sites

Formulation	Smooth, nonhairy skin; thick, hyperkeratotic lesions	Hairy areas	Palms, soles	Infected areas	Between skin folds; moist, macerated lesions
Ointment	+++		+++		
Cream	++	+	++	+	++
Lotion		++		++	++
Solution		+++		+++	++
Gel		++		+	+
Foam	++	+++	++	++	++

+: infrequently used; ++: acceptable vehicle; +++: preferred vehicle.

Adapted from: Goldstein BG, Goldstein AO. Practical Dermatology 2nd ed, Mosby-Year Book, Inc, St. Louis, MO, 1997.

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VEHICLES AND FORMULATIONS

- Ointments are generally the most potent formulations due to their occlusive effect, but patient acceptance and adherence to treatment may be low because they are greasy, sticky, and generally unsuitable for application to large body areas or to hairy areas.

- Creams They are cosmetically appealing and can be washed off with water. For the same topical corticosteroid, cream formulations are usually stronger than lotions but less potent than ointments.

VEHICLES AND FORMULATIONS

- Lotions (as well as foams and solutions) are especially useful in hairy areas and in conditions where large areas have to be treated. In addition, as lotions evaporate, they provide a cooling and drying effect, making them useful for treating moist dermatoses and/or pruritus.

- Gels are transparent, colorless, semisolid emulsions that liquefy on contact with the skin. They are easily absorbed and are an efficient method for delivering topical corticosteroids to hair-bearing areas.

CORTICOSTEROID SELECTION AND ADMINISTRATION

Some general recommendations regarding selection of the optimal corticosteroid preparation include:

1. In general, it is best to start with the lowest potency agents needed and use for as short a period of time as possible.

2. Super high-potency corticosteroids are generally used for severe dermatoses over non-facial/non-intertriginous areas. They are especially useful over the palms and soles, which tend to resist topical corticosteroid penetration due to the thick stratum corneum.

CORTICOSTEROID SELECTION AND ADMINISTRATION

3. Medium- to high-potency strength preparations are appropriate for mild to moderate non-facial/non-intertriginous dermatoses.

4. Eyelid and genital dermatoses should be managed with low-potency topical corticosteroids for limited time periods.

5. Low to medium strength preparations should be considered when large areas are treated because of the likelihood of systemic absorption

Percutaneous absorption

- depends on several factors:

Type of corticosteroid and bioavailability

Vehicle

Integrity of the skin barrier

Use of occlusive dressings

Surface area

Frequency and duration of treatment

Presence of inflammation

Steroids

Potency of the steroid depends upon the vasoconstrictive properties

- Typically, with high-potency steroids:
  Use no longer than 3 weeks
  Use on thickened lesions
  Not for use on face, skinfolds, or mucous membranes

The vehicle is as important as the steroid concentration

- Occlusives can increase percutaneous absorption
- Ointments are stronger than creams, which are stronger than lotions
- Gels may be beneficial for hairy or oily areas

Use with moisturizers

- Apply corticosteroid first
- The goal is to increase moisturizers while decreasing corticosteriod use

Frequency of Administration and Duration of Treatment

- Once-or twice-daily application is recommended for most preparations.- More frequent administration does not provide better results.

- If a longer duration is needed, the steroid should be gradually tapered to avoid rebound symptoms, and treatment should be resumed after a steroid-free period of at least one week.

Amount to use

- Caregivers can use the fingertip unit (FTU) to estimate the amount of topical corticosteroid to apply.

- A fingertip unit is the amount of product which covers the tip of the caregiver's index finger to the distal skin crease

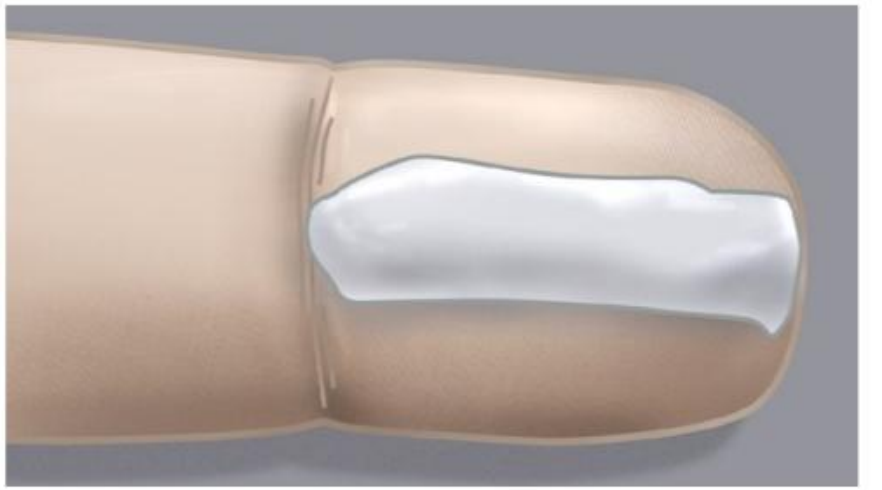


Table 3. Quantity of Ointment Based on Fingertip Units*

Area of the body	*Fingertip unit required for one application*	*Weight of ointment required for one application (g)*	*Weight of ointment required for an adult male to treat twice daily for one week (g)*
Face and neck	2.5	1.25	17.5
Trunk (front or back)	7	3.5	49
One arm	3	1.5	21
One hand (one side)	0.5	0.25	3.5
One leg	6	3	42
One foot	2	1	14

*—*One fingertip unit = approximately 0.5 g.*

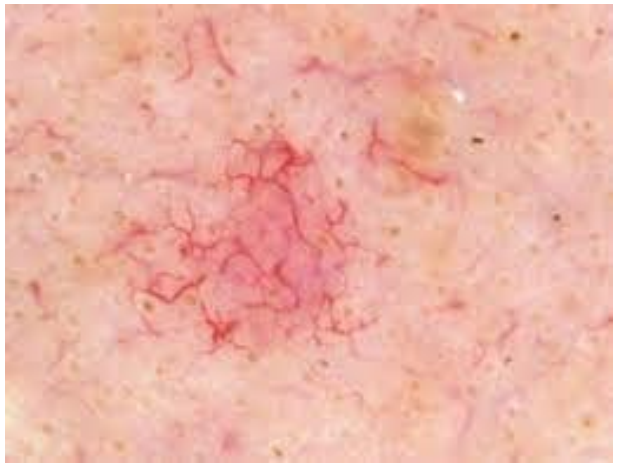
ADVERSE EFFECTS

- Topical corticosteroids are safer than systemic glucocorticoids. Nevertheless, cutaneous and systemic side effects can occur, particularly with super potent and potent drugs.

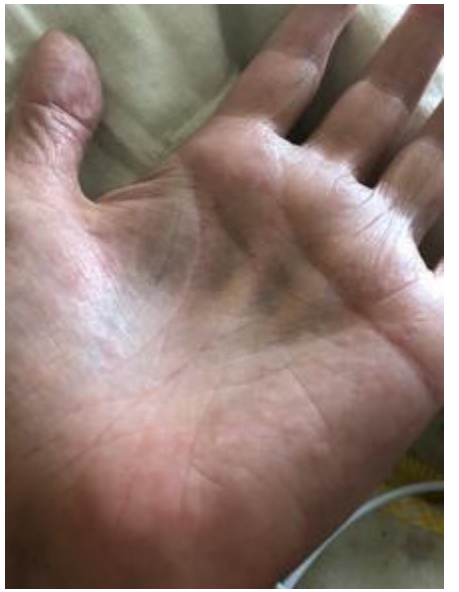
- All topical steroids can induce atrophy, but higher potency steroids, occlusion, thinner skin, and older patient age increase the risk.

- **Atrophy, telangiectasia, striae** – Super potent and potent topical corticosteroids may induce atrophy, telangiectasia, and striae as early as two to three weeks following daily application

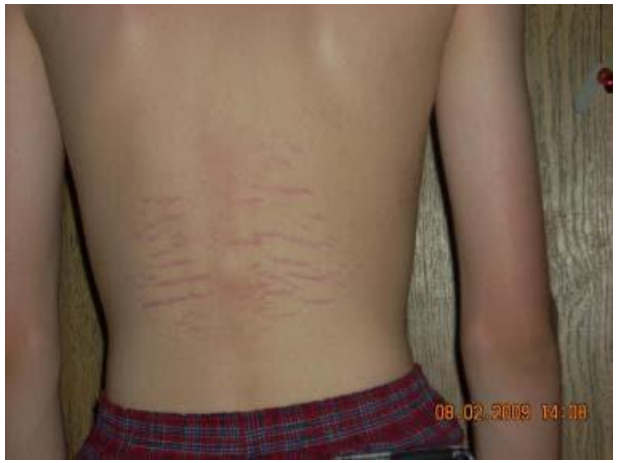
ADVERSE EFFECTS



Telangiectasia



Skin atrophy



Striae

ADVERSE EFFECTS

- **Systemic** — Topical corticosteroids, particularly super high-potency and high-potency can cause hypothalamic-pituitary axis (HPA) suppression

- Factors that predispose to HPA suppression include use of high-potency corticosteroids, chronic use, application to highly permeable areas, treatment of large areas, occlusion, altered skin barrier

Side effects of topical corticosteroids

Side effects are more likely if you're:

- using a more potent corticosteroid.
- using it for a very long time, or over a large area.
- The elderly and very young are more vulnerable to side effects.
- If potent or very potent topical corticosteroids are used for a long time or over a large area, there's a risk of the medicine being absorbed into the bloodstream and causing internal side effects

SORT: KEY RECOMMENDATIONS FOR PRACTICE

Clinical recommendation
Topical steroids can be used to treat psoriasis, vitiligo, lichen sclerosus, atopic dermatitis, eczema, and acute radiation dermatitis.
Ultra-high-potency topical steroids should not be used continuously for longer than three weeks.
Low- to high-potency topical steroids should not be used continuously for longer than three months to avoid side effects.
Combinations of topical steroids and antifungal agents generally should be avoided to reduce the risk of tinea infections.

RECOMMENDATIONS

- Suboptimal medication use due to improper prescribing or poor communication with patients can result in treatment failure.

- When prescribing topical corticosteroids, care should be taken to ensure that the quantity prescribed is sufficient to cover the entire treatment area for the duration of treatment

Therapeutic guidelines

Topical corticosteroids are recommended for their anti-inflammatory activity in inflammatory skin diseases, but they can also be used for their antimitotic effects and their capacity to decrease the synthesis of connective tissue molecules. Some general rules should be remembered when prescribing topical corticosteroids:[48]

1. Very responsive diseases require mild or moderately potent formulations, while less responsive conditions require high or very high potency corticosteroids sometimes associated with occlusion.
2. Mild formulations should be used on the face, groin, axillae, genital, and perineal areas.
3. Very potent formulations should only be used for short periods (14 to 20 days), or intermittently, to reduce adverse effects and prevent tachyphylaxis.

Therapeutic guidelines

4. Potent or very potent formulations are usually required on palms and soles, and for lichenified and hypertrophic dermatoses.
5. Occlusion is often needed on palms and soles to enhance penetration of the active molecule through a thicker stratum corneum.
6. Corticosteroids should not be used on ulcerated or atrophic skin.
7. Before starting topical therapy with corticosteroids, verify the absence of underlying infectious diseases.
8. Sudden discontinuation should be avoided, after prolonged use of topical corticosteroids, to prevent rebound phenomena.
9. When treating children, special guidelines should be followed to avoid the disadvantages of under-application or the occurrence of systemic and local adverse effects due to overdosage.[49]
10. Laboratory tests should be performed after long periods of therapy and/or the treatment of large areas.