

Review Article

Principles of prescribing and guidelines for use of topical steroids in dermatology practice

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Abstract Corticosteroids have been proven invaluable topical agents in treating a variety of inflammatory conditions affecting skin. They are to be used with caution in any patient in order to avoid untoward effects, which can be mild and respond readily to discontinuation of the corticosteroid agent, or be severe and even life-threatening in their impact. Not only must the agent used and its potency be considered when prescribing, but the properties of its vehicle, duration of therapy, and site of application can all affect the degree of systemic absorption and severity of side effects. None of these products can be considered safe under all circumstances. Some general principles and guidelines on prescribing topical steroids are discussed in this article.

Key word

Corticosteroids, topical, guidelines.

General principles¹

- For all topical drugs, choose the active ingredient coupled with an appropriate vehicle or base that suits the dermatological condition best.
- A sufficient but not excessive quantity should be prescribed. For an adult, 30 g (about 1 oz) cream or ointment is required for an application to cover the whole body surface once which comprises of : 3 g for head and face, 3 g for an arm , 6 g for a leg, 9-12 g for the trunk
- A thin smear twice daily is generally sufficient.
- Drugs prescribed should be effective and not exceed the patient's economic

limit.

- Clear simple-to-follow instructions must be given to the patient concerning the frequency and quantity of application. A concise explanation on the mechanism of action and side effects of the prescribed drug often improves patient's trust on the doctor.

Principles of prescribing topical steroids

To obtain the maximum benefit with the minimum adverse effects following factors have to be taken into account.

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Steroid type (potency, efficacy and bioavailability)²⁻⁷

The major issue of topical corticosteroid use in dermatology, revolves around balancing the ability to produce the desired effect (efficacy) and the relative effectiveness of the drug (potency) while minimizing systemic absorption and consequent side effects. The more lipophilic the agent applied, combined with increased bioavailability from its delivery vehicle, the more likely its per cutaneous penetration. Glucocorticoid chemical structure dictates biological activity, and manipulation in the structure also changes various biological effects, like duration of action and dermal penetrability. The potency level of the corticosteroid used should be selected based on the responsiveness of the dermatologic condition. In general, use the lowest potency agent that is effective for the shortest duration of time.

- ***Vehicle¹⁻⁵***

Since the vehicle makes up the greatest portion of a topical formulation, the choice of vehicle in topical formulations is of great importance. The ideal vehicle is easy to apply and remove, cosmetically acceptable, nonirritating, compatible with the active ingredient and releases the active drug readily. For a given strength of the same steroid, ointments are more potent than creams. The occlusive nature of ointment enhances steroid penetration. Ointment is often used for dry, fissured and lichenified skin disease because of its moisturizing effect. Creams (oil in water emulsions) may be drying and thus more

suitable for acute and subacute weeping lesions and for the moist and intertriginous (flexural) areas. For the scalp, steroids are often delivered in a lotion or gel. These vehicles lack the moisturizing benefit of either creams or ointments. Propylene glycol can act as a penetration enhancer. By using it in a vehicle, the delivery of the topical steroid can be increased.

- ***Application method- frequency, duration and use under occlusion^{2-5,8,9}***

Corticosteroid preparations should normally be applied once or twice daily. The length of a corticosteroid cream or ointment expelled from a tube may be measured in terms of a fingertip unit (the distance from the tip of the adult index finger to the first crease). One fingertip unit (approximately 500 mg) is sufficient to cover an area that is twice that of the flat adult hand. Suitable quantities of creams and ointments to be prescribed for specific areas of the body for an adult for twice daily application for 1 week are: (Face and neck 15 to 30 g, both hands 15 to 30 g, scalp 15 to 30 g, both arms 30 to 60 g, both legs 100 g, trunk 100 g, groins and genitalia 15 to 30 g). The efficacy of steroids can be increased by application under occlusion. This increases hydration of the skin and enhances penetration and is warranted in various chronic recalcitrant dermatoses. However, there is an increased risk of adverse effects if the use of steroid under occlusion is prolonged. Absorption obviously increases as the duration of therapy or the frequency of application increases

and this puts the patient vulnerable for undesired effects of steroids.

- ***Nature and extent of the skin disease***²⁻⁵

In general, acute inflammatory eruptions respond well to mild/moderate strength topical steroids. Chronic, thickened or hyperkeratotic dermatoses may require potent or very potent steroids. The less responsive the disease, the greater the potency of the corticosteroid that may be required.

- ***Patient factors - age, site of the disease***^{2-5,10,11}

Absorption obviously increases as the treated body surface area increases. This poses particular risk for systemic absorption and also increases the likelihood of untoward hormonal results. Premature babies have relatively thin skin that facilitates absorption. The elderly already have thin skin, which can be accentuated by superpotent topical steroids leading to further atrophy and purpura. Drugs are cleared from elderly skin more slowly, thus potentiating their effects. The lower potency steroids are generally used in these patient groups. Particular care should be given when steroids are used in the diaper area. Corticosteroids are absorbed by different parts of the body at different rates. The face, because of the thin stratum corneum, is unusual in its response to potent steroids that might otherwise be appropriately applied safely and extensively elsewhere on the body. Similarly, intertriginous or flexural regions are also notorious for increased potential for side effects if potent steroids are used for shorter

period or mild potency steroids are used for longer duration due to enhanced absorption from these regions (occlusive effects). Hydrocortisone or its equivalent is the most potent steroid that should be used on the face and intertriginous areas, but surface treated, total dose, and duration of therapy should all be minimized.

- ***Appropriate regimens***^{5,11,12}

Short-term, intermittent therapy with high-potency agents may be a more effective, less-toxic option to continuous regimens with lower potency products. A drug holiday of at least 1 week is required after 14 days of continuous therapy with several of the superpotent steroids. After long-term use, or after using a potent agent, taper treatment to a less potent agent or alternate with an emollient to prevent rebound.

- ***Special concerns in children***¹¹⁻¹³

Use low-potency agents in children, on large areas, and on body sites prone to steroid damage such as the face, axilla, flexures, skin folds, and scrotum. Reserve very high-potency corticosteroids for areas and conditions resistant to milder agents, do not exceed 2 weeks of continuous therapy, do not exceed 50 g per week total dosage, do not occlude, and periodically evaluate these patients for evidence of HPA axis suppression.

Guidelines for use of topical steroids¹¹⁻¹⁴

1. Low-strength preparations are preferred for the face and intertriginous areas.

2. Short-term use of more potent agents is occasionally required. These agents should rarely, if ever, be used in the diaper area of infants.
3. The duration of daily use of very-high-strength topical corticosteroids should not exceed 3 weeks. Recalcitrant lesions on small body areas may be treated for a longer duration of time.
4. Intermittent therapy may be preferred to continuous therapy even with the use of low-strength topical corticosteroids for long-term management of chronic skin diseases, particularly if large surface areas are being treated.
5. Topical corticosteroids should be discontinued when the skin disease has resolved. If continuous long-term treatment is needed, patients should be monitored for the development of side effects and tachyphylaxis (loss of clinical effect over time).
6. Use the lowest potency corticosteroid that is effective, especially on infants and children.
7. Prolonged use should be avoided in the periorbital area, face, and intertriginous areas.
8. Instruct your patient regarding the proper application technique, specific amount to use, and duration of therapy. Once or twice daily application is often sufficient.
9. For the very potent steroids, even a single daily application is sufficient to decrease the chances of tachyphylaxis.
10. Steroids should be applied lightly and no message is required.
11. Have a look on hypothalamic pituitary axis (HPA) suppression if patient is receiving systemic steroids as well or

the requirement of topical steroids is > 50 g.

12. Dilutions and cocktails of steroids with other agents should best be avoided.
13. Patients should not allow the other persons to use their medicine and not to use it themselves for other skin problems at a later time.
14. Topical corticosteroids may be used in pregnancy, as fetal abnormalities have not been documented in human beings.
15. These are also considered safe in lactation but should not be applied to the nipples before nursing.

Conclusion

Because of their undisputed efficacy and modern advancement, topical corticosteroids constitute the largest group of drugs being used in dermatology. Side effects are rarely seen when mild or moderately potent steroids are used in short bursts, and provided certain precautions are taken. With the help of a knowledgeable physician, even most potent topical steroids can be used safely and effectively.

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