

REVIEW ARTICLE**A review on misuse of topical corticosteroids**

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ABSTRACT

Steroidal hormones are secreted by the adrenal cortex which is located at the upper region of both kidneys and are majorly of two types, that is, glucocorticoids and mineralocorticoids. Topical corticosteroids (TCs) are mostly indicated for psoriasis, limited areas of vitiligo, eczema, atopic dermatitis, lichen planulus, lichen simplex chronicus, discoid lupus erythematosus, phimosis, and acute radiation dermatitis. The misuse of TCs is mostly due to its cosmetic utilization and is increasing day by day by both physicians and patients due to its availability as over the counter drugs. Misuse can be decrease through patient counseling and by creating awareness about TCs and its effects which include side effects such as atrophy, telangiectases, purpura, hypopigmentation, hyperpigmentation, acneiform eruptions, rosacea like perioral and periorbital dermatitis, and hypertrichosis.^[1-3]

Keywords: Topical Corticosteroids, Steroidal hormones, Glucocorticoids and Mineralocorticoids

INTRODUCTION**Corticosteroids**

Corticosteroids are a class of steroid hormones that are produced and secreted by the adrenal glands which are located on top of both kidneys in response to pituitary adrenocorticotrophic hormone which is modulated by hypothalamic corticotrophin releasing hormone.^[4]

Steroidal hormones are secreted from cholesterol. They are majorly of two types, that is, glucocorticoids and mineralocorticoids. The above are produced inside the body and their analogues are developed in laboratories outside the body. These have partially androgenic properties.

There are many routes of administration of corticosteroids; they are oral route of

administration, parenteral route of administration which includes both IV and IM, and topical route of administration.

TCs can be divided into seven classes based on potency of drugs,

- Class-I super potent
 - Clobetasol propionate 0.05%
 - Halobetasol propionate 0.05%
 - Desoximetasone 0.25%
- Class-II: High potent
 - Betamethasone dipropionate 0.05% cream
 - Halcinonide 0.1%
- Class-III: Medium high potency:
 - Fluticasone propionate 0.005% ointment
- Class-IV medium potency:
 - Mometasone furoate 0.1% cream
- Class-V: medium potency
 - Betamethasone valerate 0.1% cream
 - Fluocinolone acetonide 0.025% cream
- Class-VI: Low potency
 - Desonide 0.05% cream
 - Fluocinolone acetonide 0.01% cream

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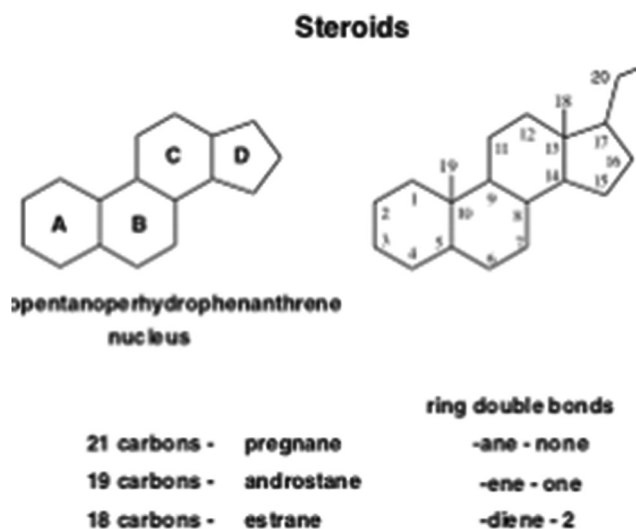
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- Class VII: low potency
 - Hydrocortisone acetate
 - Dexamethasone acetate 0.1%.^[5]

BIOSYNTHESIS

They are totally 21 carbon compounds of cyclopentanoperhydrophenanthrene which is having steroidal nucleus.



Cholesterol produces pregnenolone which initiates steroidogenesis with the help of steroid enzymes. Pregnenolone produces progesterone and 17 α hydroxy pregnenolone. Progesterone produces aldosterone from cortisone, whereas 17 α hydroxy pregnenolone produces hydrocortisone and testosterone. Therefore, hydrocortisone includes both gluco and mineralocorticoids.^[6]

MECHANISM OF ACTION

Topical corticosteroids (TCs) act by passing through cell membrane which binds to receptor protein and forms steroid receptor complex. The complex binds to DNA in the nucleus and changes the transcription of mRNA that inhibits interleukin formation (IL1) produce anti-inflammatory, immunosuppressive and antimitogenic effect.

TCs are mostly indicated for psoriasis, limited areas of vitiligo, eczema, atopic dermatitis, lichen planulus, lichen simplex chronicus, discoid lupus erythematosus, phimosis, and acute radiation dermatitis.^[2,7]

MISUSE OF TC

Misuse of TCs is mostly due to cosmetic purpose, because TCs are widely available as over the counter drugs for many indications advised by beauticians, friends, neighbors or even some times due to lack of knowledge over TCs, improper adherence, and lack of counseling by physician to the patients on TCs.

TCs are most important in dermatological diseases especially in those conditions with hyper proliferation, inflammation, and immunological diseases.^[3,6,8,9]

Most commonly used TCs are betamethasone valerate followed by use of combination of clobetasol propionate, antibiotics, and anti-fungal. These are widely used for conditions such as melasma, urticaria, and many un-diagnosed conditions by dermatologists but mostly by general physicians, because it gives very quick relief even when they are applied topically in first use.^[9,10]

The misuses of TCs are increasing day by day by both patients and physicians over the years.

Most of the patients were misled to use TCs for fairness, cosmetic creams, anti-acne, anti-fungal therapy, and for many skin eruptions. The chances of reusing TCs prescribed previously by the physician for a new rash or lesion by many patients.

We have been noticing that irrational use of TCs for many skin conditions by chemists, pharmacists, and non-medical practitioners are of serious areas to be concerned.^[8,11]

However, the improper usage of TCs leads to many side effects but some will be serious and some may not affect the patient. The loss to the patient may be both physical and psychological. However, the most commonly occurred side effects due to misuse of TCs are (multiple local side effects) atrophy, telangiectasis, purpura, hypo pigmentation, acneiform eruptions, rosacea like perioral and periorbital dermatitis, and hypertrichosis. These are all caused due to inappropriate indications and misuse and includes atrophy, striae, hyper pigmentation, steroid rosacea, steroid acne, steroid induced folliculitis, tinea incognito, tachyphylaxis, and hirsutism.^[12-16] Topical steroids can rapidly induce an acneiform eruption too all topical steroids

have been shown to cause skin atrophy, although to a variable degree. However, the identification and treating conditions like this are kind of difficult due to lack of patient history and patient knowledge and are mostly likely due to altering normal/usual clinical presentations.^[8,17-26]

CONCLUSION

TCs are misused due to availability as over the counter, non-adherence, lack of patient knowledge, and lack of physician–patient communication. Misuse can be decreased by patients counseling and creating awareness to both medical representatives (chemists, pharmacists, and non-medical practitioners) and patients on how does TCs affects in long-term basis.

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