

# Principles of Topical Treatments in Dermatology

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- The skin has a surface area of 1.6-2 m<sup>2</sup>
- This area enables the enhancement of systemic treatment measures
- An extensive region for the application and absorption of topical medications
- The active ingredients penetrate the skin either via transepidermal or transfollicular pathways

# What are the parameters that should be considered for cutaneous drug administration

- Age of patient
- Area of the body
- Pathologic changes in the skin
- Hydration of stratum corneum and skin temperature
- Vascular supply
- Role of vehicle

# What are dermatologic vehicles?

- Powder
- Paste
- Shake lotion
- Ointment
- Hydrophilic ointment, cream or lotion
- Water

# When do we use topical treatment?

- If a patient has a skin disorder covering < 30% of body, the topical medication may be considered.

# Choice of vehicles

- Three main determinants to choose the right vehicle are:

Patient's skin type

Degree of acuity of the disease

Nature of the lesions

# Choice of vehicles

- Skin type: About 50% of individuals have oily skin or seborrhea. They do better with creams, lotions, or shake lotions while the ones with dry skin do better with ointments or pastes.
- Degree of acuity: Acute inflammatory processes are best treated with creams or lotions. If the lesions are weeping, shake lotions are fine.

# Choice of vehicles for different lesions

Lesion	Recommended	Avoided
Acute erythema	shake lotion, lotion, cream	Ointment, paste
Vesicles	shake lotion, gel, lotion	Paste, ointment
Blisters	Wet dressings, shake lotions	Paste, ointment, powder
Erosions	Wet dressings, ointment	powder, shake lotion
Crusts	Ointment, wet dr.	Powder, gel
Ch. inflammation	Ointment	



# Topical agents

- Keratolytic agents
- Cytotoxic agents: Podophyllin, 5-fluorouracil
- Retinoids
- Antibiotics, antifungals, antiviral agents
- Corticosteroids
- Combination products
- Tacrolimus, pimecrolimus
- Nonsteroidal antiinflammatory agents
- Sunscreens

# Topical corticosteroids

- Class I (weakest): Hydrocortisone, prednisolone
- Class II: Methylprednisolone aceponate, triamcinolone
- Class III: Betamethasone 17-valerate
- Class IV (strongest): Clobetasol 17-propionate

# Side effects of topical corticosteroids

- Epidermis : Atrophy
- Hair follicles: Steroid acne
- Dermis: Atrophy, striae
- Pigmentation: Hypopigmentation
- Vessels: Erythema, telangiectases

# What would you prescribe for:

- An infant having flares of erythema and small papules on the cheeks
- An infant having severe erythema and mild scaling involving the convexities of the buttocks
- A female adult having mild erythema, scales and fissures on the fingertips and volar aspect of her hands

# What would you prescribe for:

- A burn (with hot water) involving the wrist, with erythema and blisters
- A clinical picture with vesicles, yellow crusts and oozing erosions
- Hyperkeratotic plaque with scales, prominent skin markings and severe pruritus













