



Topical anti-inflammatory and Antipruritic agents

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Psoriasis

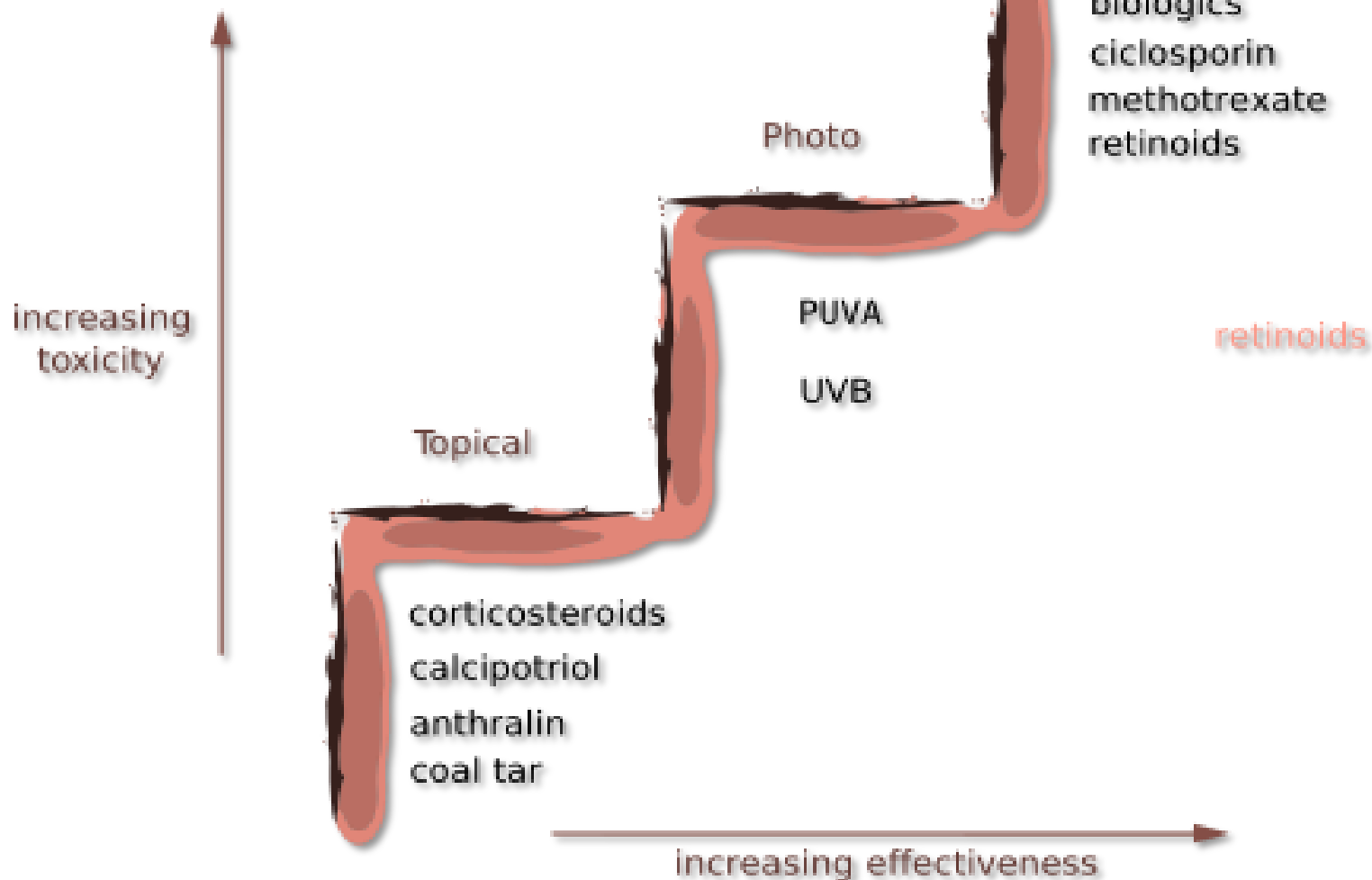
- chronic inflammatory disease characterized by recurrent exacerbations and remissions of thickened, erythematous, and scaling plaques.
- relatively asymptomatic, but about 25% of patients complain of pruritus



Treatment of Psoriasis

- 1. First-line topical pharmacotherapy:**
 - Moderate to high potency topical steroid creams, gels and ointment.
 - Topical calcipotriene
 - Topical coal tar derivatives (anthralin/LCD) and retinoids (Tazorac)
- 2. Phototherapy with narrowband UVB and PUVA**
(“psoralen and ultraviolet light A”)
- 3. Second line-systemic pharmacotherapy :**
 - Methotrexate, a potent antimetabolite and immune suppressant.
 - Cyclosporine, a potent immune suppressive drug

Schematic of psoriasis treatment ladder



First-line topical pharmacotherapy

Keratolytics

1. **Salicylic acid:** is one of the most commonly used keratolytics.

- It remove scales, smooth the skin, and decrease hyperkeratosis.
- The keratolytic effect enhances penetration and efficacy of some other topical agents such as **corticosteroids**

First-line topical pharmacotherapy

2. Corticosteroids

- Topical corticosteroids: gel , cream and ointment
- Low-potency products:
 - Hydrocortisone, Methylprednisolone, Alclometasone, **Dexamethasone**, Flumethasone
- Medium-potency products:
 - **Beclomethasone dipropionate** , Fluocinolone acetonide
- High-potency preparations :
 - Clobetasol propionate, **Betamethasone**

Topical Corticosteroids

- **Adverse effects:**
 - local tissue atrophy.
 - Thinning of the epidermis
 - Systemic consequences: hyperglycemia, Tachyphylaxis and rebound flare of psoriasis after abrupt cessation of therapy can also occur.

Calcipotriene

a synthetic vitamin D analog used for moderate to severe plaque psoriasis and scalp.

Tazarotene

a synthetic retinoid that is hydrolyzed to its active metabolite, tazarotenic acid. **Tazarotene is often used with topical corticosteroids to decrease local adverse effects and increase efficacy.**

Coal Tar



- MOA: Tar can help slow the rapid growth of skin cells it can help reduce the inflammation, itching and scaling of psoriasis.
- Generally, the higher the concentration of tar, the more potent the product.
- It is usually applied directly to lesions in the evening and allowed to remain in skin contact through the night.
- It may also be used in bathwater.
- No quick onset but longer remission
- Often combined with SA, UV light therapy



Anthralin



- Anthralin: antiproliferative activity on keratinocyte
- 2 treatment approach:
 - **long contact (LCAT)** Cream and ointment formulations are usually applied in the evening and allowed to remain overnight
 - **short contact (SCAT)** :Alternatively, short-contact anthralin therapy with application for 10 to 20 minutes
- Anthralin products must be applied **only to affected areas** because contact with uninvolved skin may result in excessive irritation and staining
- **Staining of affected plaques indicates a positive response because cell turnover has been slowed enough to take up the stain.**

Second-line systemic pharmacotherapy

1. **Biologic therapies :Infliximab, Adalimumab**
2. **Acitretin** is a retinoic acid
3. **Cyclosporine demonstrates immunosuppressive activity by inhibiting of T-cell**
4. **methotrexate**
5. **Tacrolimus, an immunosuppressant that inhibits T-cell activation,**

Second-line systemic pharmacotherapy

Hydroxyurea

- **MOA: inhibits cell synthesis**
- used selectively in the treatment of psoriasis, especially in those with liver disease who would be at risk of adverse effects with other agents.
- Adverse effects include bone marrow toxicity ,cutaneous reactions, leg ulcers, and megaloblastic anemia.

Anti-pruritics

- There are several ingredients that have been approved by the FDA for treating itch.
 1. **calamine lotion:** zinc oxide. It has a mild drying action on the skin
 2. **Topical hydrocortisone** (a weak steroid),
 3. **Menthol/Camphor.** Menthol provides a sensation of coolness by acting on the skin's receptors
 4. **Oral antihistamine:** diphenhydramine