

Topical antibacterial Agents



Gramicidin

Polymyxin B sulfate → X proteus, Serratia
→ SE: neuro, nephrotoxicity

Cell wall ~~in~~ Bacteriacin → SE: dermatitis
Synthesis ⊖
? in combination

~~Aminoglycoside~~ Neomycin, Gentamicin → SE: systemic toxicity
protein synthesis ⊖
renal failure

protein ~~in~~ Fusidic acid
Synthesis ⊖

P. aeruginosa
Staphylococci, group A streptococci

Trichogenic agents

Minoxidil (Rogaine)

→ K^+ channel opener

→ NO against

Effective in reversing miniaturization

Finasteride (Propecia)

5α reductase inhibitor → ↓ dihydrotestosterone

Oral

SE: libido, ejaculation disorders, erectile dysfunction

Antitrichogenic Agent s

Eflornithine

irreversible

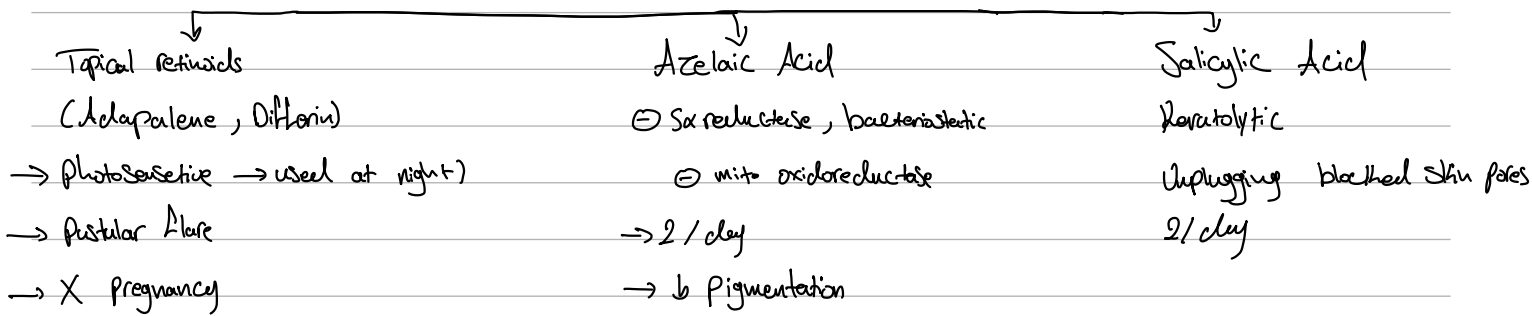
N Ornithine decarboxylase ⊖

→ Polyamine → X cell division, hair growth

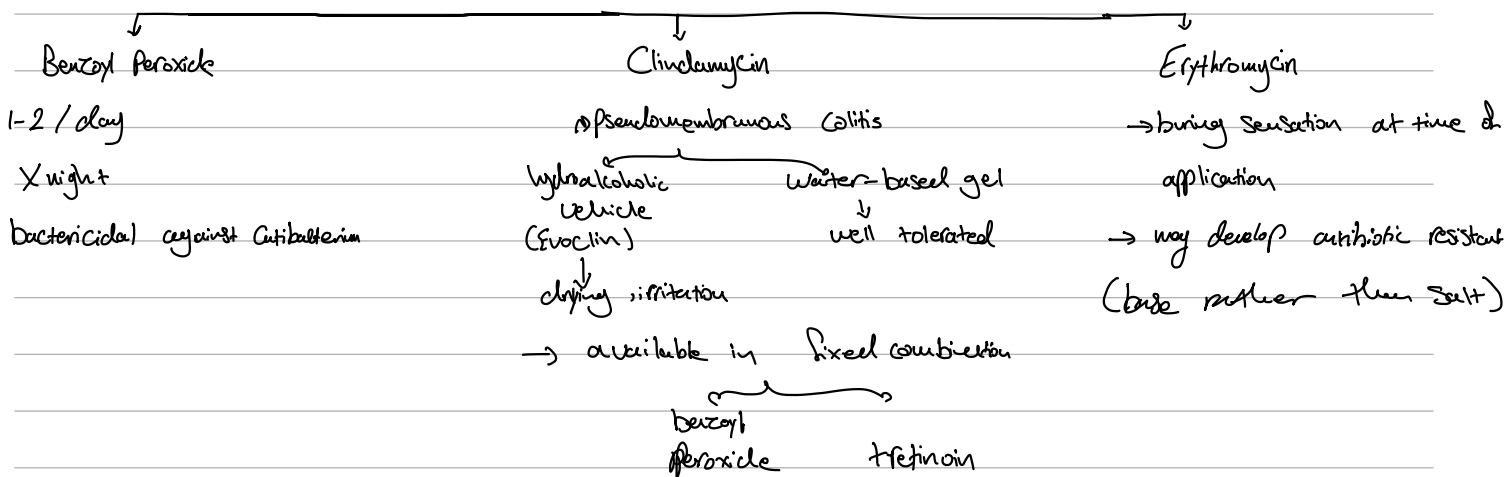
↓
Facial hair growth

Acne treatment

1) Anti Comedonal Agents → Comedonal acne, mild to moderate inflammatory acne

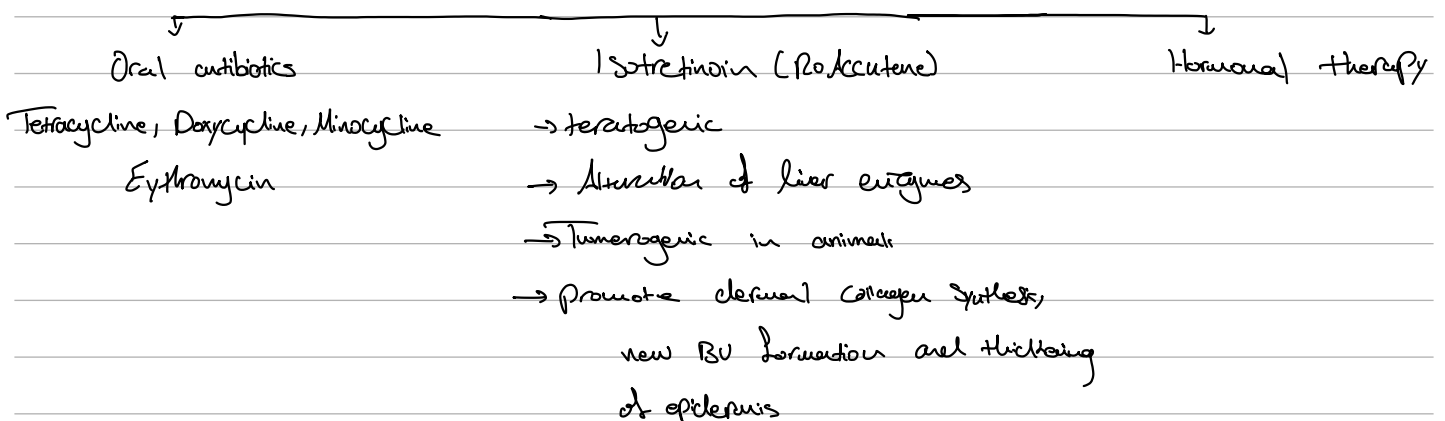


2) Anti-inflammatory agents



⊗ Metronidazole → rosacea treatment → ⊖ on Demodex brevis, effect on neutrophil cellular anti-inflammatory function
↓ X near the eye

3) Systemic therapy: Moderate acne non-responsive to topical therapy, nodulocystic acne



Psoriasis treatment

1) Topical corticosteroids

SE $\rightarrow$ suppression of pituitary-adrenal axis

$\rightarrow$ Hypopigmentation

$\rightarrow$ Atrophy

2) Vitamin D analogues (Calcipotriene, Calcitriol) $\rightarrow$ Slow cell growth

$\downarrow$
less irritation in sensitive areas

3) Acitretin

Related to isotretinoin

Orally

Hepatotoxic, teratogenic

X pregnancy

4) Tazarotene

Topical, Anti-inflammatory, antiproliferative

Teratogenic

5) Calcineurin inhibitors $\rightarrow$ thin skin $\rightarrow$ avoid eyes $\rightarrow$ Steroid cream or retinoids are irritating

(ex: tacrolimus, pimecrolimus)

Calm the rash, $\downarrow$ scaly build up

Not recommended in pregnant or breastfeeding

Risk of Skin Cancer and lymphoma

6) Salicylic acid

Shampoos, Scalp solution

(alone or with other topical therapy)

7) Coal tar

reduce scaling itching

Shampoo, oil, cream

$\rightarrow$ Messy, irritating

8) Anthralin

tar cream

Slow skin cell growth

remove scales

make skin smoother

New drugs

9) Apremilast (Otezla) $\rightarrow$ psoriasis, psoriatic arthritis, other immune related inflammatory dis.

selective $\ominus$ of PDE4 enzyme, $\ominus$ spontaneous production of TNF- α from human rheumatoid synovial cells

SE: diarrhea, nausea, stomach pain ---, sneezing, runny nose

10) Deucravacitinib (Sotyktu)

Oral, adults with plaque psoriasis ^{moderate to severe}
Once daily
MOA: Allosteric $\ominus$ of tyrosine kinase 2
SEs: runny nose, congestion, sore throat, acne

11) Roflumilast (Tavye) cream

topical acting $\ominus$ of PDE-4, anti-inflammatory effects
Chronic plaque psoriasis, topical, All psoriasis affected areas

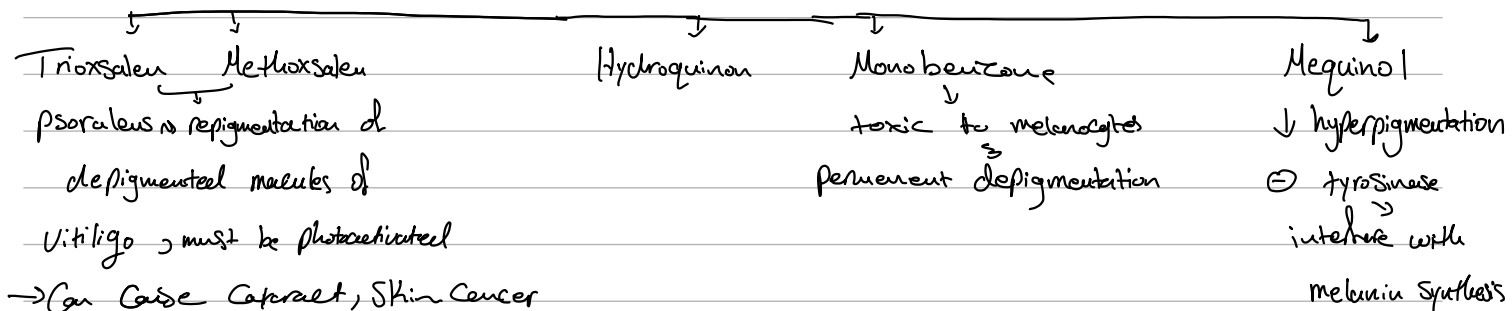
12) Tapinarof (Vtama)

Topical, plaque psoriasis (adults)
MOA: immune modulation, skin barrier normalization, antioxidant
→ Once daily

13) Biologic Agents (Etanercept)

Dimeric fusion protein
of TNF receptor linked
to FC portion of
human IgG
Psoriasis, RA, AS

Agents affect pigmentation



Antiviral Drugs for skin (HSV, VZV)

1) Acyclovir

→ nucleoside analog → require phosphorylation → active only in infected cells

Competitive $\ominus$ of viral DNA polymerase → Incorporation into viral DNA → Chain termination
→ $\ominus$ viral DNA synthesis

HSV-1, HSV-2 $\gg \gg$ VZV, Varicella Zoster, EBV, CMV, HHV-6
10 times

oral → 15-20% Bio. Av. $\rightarrow$ recurrent herpes labialis (cold sores), Genital herpes (first, recurrent, in HIV patients)

IV → severe HSV, Herpes encephalitis

Topical → Herpes labialis

SEs: Oral → headache, nausea, vomiting, diarrhea & Topical → irritation & IV → renal dysfunction

2) Valacyclovir → L-valyl ester of Acyclovir → First, recurrent genital herpes
oral 3-5 times $\gg$ oral acyclovir → Suppression of frequently recurring genital herpes
= IV " Once daily → Orolabial herpes
Varicella, herpes zoster

3) Foscarnet → Phosphonoformate (Competitive $\ominus$ of DNA Polymerase)

CMV, Herpes Simplex, HIV
↓
CMV retinitis in immunocompromised patients; Acyclovir-resistant HSV infections

→ must be given frequently, IV

SEs: Nephrotoxicity, anemia, nausea, hypocalcemia, hypomagnesemia
↓
Common

4) Vidarabine → Chain terminator

HSV, VZV, Vaccinia

↓
topical to

Severe cases

used (before Acyclovir) to HSV encephalitis

immunocompromised patients with herpetic and vaccinia keratitis and in keratoconjunctivitis

5) Ganciclovir → Same MoA as Acyclovir

All HSV including CMV (100 more than Acyclovir)

→ IV

→ Gel for herpetic keratitis

SE: BM suppression, CNS effects (Black Box)

Gout treatment

Acute arthritis drugs

1) NSAIDs

2) Colchicine $\left\{ \begin{array}{l} \text{high} \rightarrow \text{Acute gouty arthritis} \\ \text{low} \rightarrow \text{Recurrent " " } \rightarrow \text{daily prophylaxis} \end{array} \right.$

$\rightarrow$ gouty arthritis

X analgesis

X no effect in serum uric acid

$\ominus$ microtubule polymerization / $\downarrow$ inflammatory process

SE $\rightarrow$ GI, hematologic, muscular weakness $\rightarrow$ common with patient who has renal or hepatic disease

Urate lowering drugs

1) Allopurinol (Zyloprim)

$\ominus$ Xanthine oxidase $\rightarrow$ X Uric Acid

Pregnancy Category C

$\rightarrow$ hyperuricemia of gout, chemotherapy / recurrent Ca^{2+} oxalate Kidney Stones

SE: Diarrhea, neutropenia, liver test abnormality, acute attacks of gout, rash

2) Febuxostat

oral Xanthine oxidase $\ominus$

94% $< 6 \text{ mg/dl}$

minimal adverse event

3) Pegloticase

PEG-conjugate of recombinant porcine uricase

speed resolution of tophi

treatment-resistant gout

4) Probenecid

block tubular reabsorption

$\uparrow$ risk of nephrolithiasis

5) IL-1 receptor antagonist

Anakinra

Canakinumab

Rilonacept

6) Glucocorticoids (Prednisone) $\rightarrow$ oral, intra-articular & subcutaneous