Topical antibacterial Agents

Gram +ve

Gramicidin

Bacteriacin → SEs: dermatitis
↳ in combination

Cell wall synthesis ⊖

Fusidic acid

protein synthesis ⊖

Gram -ve

Polymyxin B Sulfate → X proteus, Serratia
↳ SEs: nephro, nephrotoxicity

Aminoglycosides: Neomycin, Gentamycin → SE: Systemic toxicity
↳ renal failure

protein synthesis ⊖

P. aeruginosa

Staphylococci, group A streptococci

Trichogenic agents

Minoxidil (Rogaine)

→ K^+ channel opener

→ NO agonist

Effective in reversing miniaturization

Finasteride (Propecia)

5α reductase inhibitor → ↓ dihydrotestosterone

Oral

SEs: libido, ejaculation disorders, erectile dysfunction

Antitrichogenic Agents

Eflornithine

irreversible

↘ Ornithine decarboxylase ⊖

⊖ polyamine → X cell division, hair growth

↳ Facial hair growth

Acne treatment

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

Topical retinoids
(Adapalene, Differin)
→ photosensitive → used at night)
→ Pustular flare
→ X Pregnancy

Azelaic Acid
⊖ 5α reductase, bacteriostatic
⊖ mito oxidoreductase
→ 2/day
→ ↓ Pigmentation

Salicylic Acid
Keratolytic
Unplugging blocked skin pores
2/day

2) Anti inflammatory agents

Benzoyl Peroxide
1-2/day
X night
bactericidal against Cutibacterium

Clindamycin
⊗ pseudomembranous colitis
hydroalcoholic vehicle (Evoclin) → drying, irritation
water-based gel → well tolerated
→ available in fixed combination
benzoyl peroxide + tretinoin

Erythromycin
→ burning sensation at time of application
→ may develop antibiotic resistant
(base rather than salt)

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

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

Oral antibiotics
Tetracycline, Doxycycline, Minocycline
Erythromycin

Isotretinoin (Roaccutane)
→ teratogenic
→ Alteration of liver enzymes
→ Tumorogenic in animals
→ Promote dermal collagen synthesis, new BV formation and thickening of epidermis

Hormonal therapy

Psoriasis treatment

1) Topical corticosteroids
SE → suppression of pituitary-adrenal axis
→ Hypopigmentation
→ Acne

2) Vitamin D analogues (Clacipotriene, Calcitriol) ↘ Slow cell growth
↓ 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 (ex: tacrolimus, pimecrolimus) → thin skin ↘ corneal eyes ↗ Steroid cream or retinoids are irritating
Calm the rash, & scaly build up
Not recommended in pregnant or breastfeeding
↑ risk of skin cancer and lymphoma

6) Salicylic acid
↓ Shampoo, scalp solution
Calcine or with other topical therapy

7) Coal tar
↓ reduce scaling itching
Shampoo, oil, cream
→ Messy, irritating

8) Anthralin
↓ tar cream
↓ Slow skin cell growth
remove scales
make skin smoother

New drugs

9) Apremilast (Otezla) ↝ psoriasis, psoriatic arthritis, other immune related inflammatory dis.
Selective ⊖ of PDE 4 enzyme, ⊖ 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 ⊖ of tyrosine kinase 2

SEs: runny nose, congestion, sore throat, acne

11) Roflumilast (Zoryve) Cream

long acting ⊖ of PDE-4, anti-inflammatory effects

Chronic plaque psoriasis, topical, All psoriasis infected 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

- Trioxsalen, Methoxsalen
  - psoralens → repigmentation of depigmented macules of vitiligo, must be photoactivated
  - → Can cause cataract, skin cancer
- Hydroquinon
- Monobenzone
  - toxic to melanocytes → permanent depigmentation
- Mequinol
  - ↓ hyperpigmentation
  - ⊖ tyrosinase → interfere with melanin synthesis

Antiviral Drugs for skin (HSV, VZV)

1) Acyclovir

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

Competitive ⊖ of viral DNA polymerase → ⊖ viral DNA synthesis

Incorporation into viral DNA → chain termination

HSV-1, HSV-2 >>> VZV (10 times), in vitro EBV, CMV, HHV-6

oral → 15-20% Bio Av → recurrent herpes labialis (cold sores), Genital herpes (first, recurrent, in HIV patient)

IV → severe HSV, Herpes encephalitis

Topical → Herpes labialis

SE: 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 > oral acyclovir

= IV // Once daily → Suppression & frequently recurring genital herpes

Orolabial herpes

Varicella, herpes zoster

3) Foscarnet → phosphonoformate (competitive ⊖ of DNA Polymerase)

CMV, Herpes Simplex, HIV

CMV retinitis in immunocompromised patients ; Acyclovir-resistant HSV infections

→ must be given frequently ; IV

SE: Nephrotoxicity (common), anemia, nausea, hypocalcemia, hypomagnesemia

4) Vidarabine → Chain terminator

HSV, VZV, Vaccinia

↓

topical ↓

Severe cases

used (before Acyclair) to HSV encephalitis

immunocompromised patients with herpetic and vaccinia keratitis and in keratoconjunctivitis

5) Ganciclovir → Same MOA as Acyclair

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 → high → Acute gouty arthritis
low → Recurrent " " → daily prophylaxis
→ gouty arthritis

X analgesis

X No effect in serum uric acid

⊖ microtubule polymerization / ↓ inflammatory process

SE → GI, hematologic, muscular weakness → Common with patient who has renal or hepatic disease

Urate lowering drugs

1) Allopurinol (Zyloprim)

⊖ Xanthine oxidase → X Uric Acid

Pregnancy Category C

↘ hyperuricemia of gout, chemotherapy / recurrent Ca^+ oxalate Kidney Stones

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

2) Febuxostat

oral Xanthine oxidase ⊖

9H % < 6 mg/dl

minimal adverse event

3) Peglotricase

PEG-conjugate of recombinant porcine uricase

speed resolution of tophi

treatment-resistant gout

4) Probenecid

block tubular reabsorption

↑ risk of nephrolithiasis

5) IL-1 receptor antagonist
Anakinra
Canakinumab
Rilonacept

6) Glucocorticoids (Prednisone) → oral, intra-articular, Subcutaneous