Chapter 48
Drugs for Skin Disorders

Three Layers of Skin
- Epidermis
- Dermis
- Subcutaneous

Epidermis
- Outermost layer; 5% of thickness
- Five layers
- Stratum corneum: outermost, strongest layer
  - Large amount of keratin
  - Forms barrier that repels bacteria and foreign matter
  - Thickest in high stress areas—soles and palms

Epidermis (continued)
- Stratum basale: deepest
  - Supplies new cells to epidermis
- The middle layers (innermost to outermost) include stratum spinosum, stratum granulosum, and stratum lucidum
- Melanocytes in deeper layers
- Secretes the dark pigment melanin
  - Helps protect the skin from ultraviolet rays

Dermis
- Second layer; 95% of thickness
- Foundation for hair and nails
- Nerve endings, oil glands, sweat glands, blood vessels here

Subcutaneous Layer
- Third layer; composed of adipose tissue
- Cushions, insulates, provides source of energy
- The subcutaneous layer is not considered when measuring skin layers
Skin Cells

- Supplied by stratum basale
  - Deepest epidermal layer
- Old cells damaged or lost by normal wear
- New cells migrate up through layers
  - Flattened and covered with water-insoluble material

Skin Cells (continued)

- Takes three weeks for new cell to reach skin surface
- Pigment determined by amount of melanin
  - Protects skin from ultraviolet in sunlight

Causes of Skin Disorders

- Skin disorders are difficult to classify
  - Infectious
  - Inflammatory
  - Neoplastic

Dermatologic Signs and Symptoms

- May be reflective of disease processes occurring elsewhere in the body
- Abnormalities in skin color, sizes, types, character of surface lesions, skin turgor and moisture
  - May have potential systemic causes

Bacterial Skin Infections

- Bacterial infections occur when there is a break in the skin’s defenses
  - Two most common: staphylococcus and streptococcus
  - Many are mild and self-limiting—treated with topical antibiotics
  - Serious skin infections are deep or systemic—require oral or parenteral antibiotics
Fungal Skin Infections
- Occur in warm, moist areas of skin
  - Tinea pedis (athlete’s foot), tinea cruris (jock itch), tinea capitis (ringworm of scalp), and tinea unguium (nails) generally mild
  - Treated with topical antifungals
  - Fungal infections of skin and mucous membranes of immunocompromised clients are serious.
  - Require oral or parenteral antifungals

Viral Skin Infections
- Childhood infections
  - Varicella (chickenpox), rubeola (measles), rubella (German measles)
- Adult infections
  - Herpes zoster (shingles) and herpes simplex (cold sores and genital lesions)

Pharmacotherapy for Viral Skin Infections
- Topical or oral antiviral therapy with acyclovir (Zovirax)

Common Skin Parasites
- Mites (Sarcoptes scabiei) cause scabies
  - Female burrows into skin and lays eggs
  - Causes intense itching
  - Common areas of infection: fingers, extremities, trunk, axillary and gluteal folds, pubic area
  - Spread by contact with upholstery and linens

Common Skin Parasites (continued)
- Lice (Pediculus)
  - Infest areas with hair
  - Lay eggs and leave debris called nits
  - Transmitted by infected clothing or personal contact

Figure 48.2 Scabies Source: Courtesy of Dr. Jason L. Smith.
Pharmacotherapy with Scabicides and Pediculicides

- Scabicides kill mites
- Pediculicides kill lice
- Treatment of choice for lice and scabies is permethrin (Nix)

Pharmacotherapy of Sunburn

- Best treatment is prevention
- After occurrence: soothing lotions, rest, prevention of dehydration

Topical Anesthetic Agents for Treatment of Sunburn

- Benzocaine (Solarcaine)
- Dibucaine (Nupercainal)
- Lidocaine (Xylocaine)
- Tetracaine HCL (Pontocaine)
Acne Vulgaris

- Affects 80% of adolescents
- Also found in over-30 population
  - Mature acne or acne tardive

Factors Associated with Acne Vulgaris

- Seborrhea: overproduction of sebum by oil glands
- Abnormal formation of keratin that blocks oil glands
- Androgens: stimulate sebum production

Rosacea

- Progressive disorder
- Onset between 30 and 50 years of age
- Characteristic symptoms
  - Small papules without pus
  - Flushed face around nose and cheeks
  - Soft tissues of nose may swell—rhinophyma

Rosacea Exacerbation

- Sunlight, stress, increased temperature
- Agents that dilate facial blood vessels
- Gender: women more often affected

Pharmacotherapy of Acne and Rosacea

- Benzoyl peroxide
  - Keratolytic—dries and sheds outer layer of epidermis
- Retinoids
  - Reduce oil production and clogged pores
  - Do not use if client is pregnant
  - Common reaction is sensitivity to sunlight
Pharmacotherapy of Acne and Rosacea (continued)

- Antibiotics
- Estrogen
- Antiprotozoals may also be prescribed if hair follicle mites are present

Dermatitis

- Inflammatory skin disorder—pain, redness, and pruritus
- Atopic dermatitis or eczema
  - Chronic; genetic predisposition
- Contact dermatitis
  - Hypersensitivity response

Pharmacotherapy of Dermatitis

- Topical glucocorticoids most effective treatment
  - Relieve local inflammation and itching
  - Adverse effects with long-term use
    - Irritation, redness, thinning of skin
  - Available in creams, lotions, solutions, gels, pads

Psoriasis

- Chronic skin disorder
- Symptoms
  - Red patches of skin covered with flaky, silver-colored scales (plaques)
- Etiology: may be genetic immune reaction

Psoriasis (continued)

- Causes extremely fast skin-turnover rate
- Plaques are shed rapidly
- Underlying skin is inflamed and irritated
Pharmacotherapy of Psoriasis

• Goal is to reduce erythema, plaques, and scales to improve appearance
• No pharmacological cure

Topical Therapies for Psoriasis

• Topical glucocorticoids
• Topical immunomodulators (TIMs): suppress immune system
• Retinoid-like compounds
• Tar treatment and anthralin: inhibit DNA synthesis and arrest abnormal cell growth

Systemic Therapies for Psoriasis

• Methotrexate (Folex)
• Acitretin (Soriatane)
• Etretinate (Tegison)
  – These medications taken orally to inhibit abnormal cell growth

Systemic Therapies for Psoriasis (continued)

• Other drugs: immunosuppressive agents and biologic therapies
• Nonpharmacological therapy includes phototherapy

Role of the Nurse

• Monitor client’s condition
• Provide client education
• Obtain medical, surgical, drug history
• Assess lifestyle and dietary habits
• Obtain description of symptomology and current therapies
**Scabicide and Pediculicide Therapy**

- Before assessing client, don gloves
- Assess client's hair and skin for evidence of lice, nits, or scabies
- Assess axilla, neckline, hairline, groin, beltline areas

**Scabicide and Pediculicide Therapy (continued)**

- Obtain thorough history: onset of symptoms; possible exposure to others
- Do not use or use cautiously in pregnant or lactating women and young children
  - Use lindane only after other agents have been unsuccessful
- Follow application instructions

**Drug Therapy for Sunburn and Minor Skin Irritation**

- Assess sunburn: location, portion of body surface area, edema, erythema, blistering
- For severe cases, assess for fever, chills, weakness, shock
- Assess skin for secondary infections, for which topical medications are contraindicated

**Drug Therapy for Acne-Related Disorders**

- Have client undress so you can examine extent of acne
- Wear gloves when assessing skin
- Assess anterior and posterior thorax

**Scabicide and Pediculicide Therapy**

- Wear gloves when applying medication
- Cleanse and dry lesions and surrounding areas prior to application of medication

**Drug Therapy for Sunburn and Minor Skin Irritation**

- Topical benzocaine (Solarcaine) may cause hypersensitivity reaction
- Do trial application on small area of skin
Drug Therapy for Acne-Related Disorders (continued)

- Obtain thorough history
  - Onset of acne
  - What treatments have been used and their effects
  - Determine whether or not client is pregnant
  - Ask about allergies, past medical history, current medications

Isotretinoin (Accutane)

- Contraindicated with history of depression, suicidal ideation, pregnancy
  - Have client sign consent regarding understanding of suicidal risks prior to treatment
  - Obtain pregnancy test in all female clients of childbearing years.

Scabicides

- **Prototype drug**: lindane (Kwell)
- **Mechanism of action**: absorbed directly into lice, mites, and their eggs
  - Produces seizures and death of parasites
- **Primary use**: marketed as cream or lotion for mites, as shampoo for head lice

Scabicides (continued)

- **Adverse effects**: absorbed across skin; can cause systemic effects
  - CNS adverse effects: restlessness, dizziness, tremors, convulsions, local irritation
  - If inhaled, may cause headaches, nausea, vomiting, or irritation of ears, nose, throat

Local Anesthetics

- **Prototype drug**: benzocaine (Solarcaine)
- **Mechanism of action**: ester-type local anesthetic
  - Local anesthesia of skin-receptor nerve endings
- **Primary use**: for temporary relief for sunburn, pruritus, minor wounds, insect bites
- **Adverse effects**: anaphylaxis is rare, though possible; some reports of methemoglobinemia in infants

Retinoids

- **Prototype drug**: isotretinoin (13-cis-retinoic acid) (Accutane)
- **Mechanism of action**: regulation of skin growth and turnover
- **Primary use**: for cystic acne or severe keratinization disorders
Retinoids (continued)

- **Adverse effects**: causes birth defects; contraindicated during lactation, pregnancy, or suspected pregnancy
  - Conjunctivitis, dry mouth, inflammation of lips
  - Dry nose, increased serum concentrations of triglycerides (by 50% to 70%)
  - Bone and joint pain, photosensitivity

Client Receiving Lindane (Kwell)

- **Assessment**
  - Obtain complete history
    - Age, allergies, drug history, possible drug interactions, seizure disorders
  - Obtain social history of close contacts.
    - Including household members, sexual partners

Client Receiving Lindane (Kwell) (continued)

- Assess vital signs
- Assess skin for presence of lice or mite infestation
  - Skin lesions, raw or inflamed skin, open areas
- Assess pregnancy and lactation status

Client Receiving Lindane (Kwell) (continued)

- Nursing diagnoses
  - Deficient knowledge, related to no previous experience with lice or mite treatment
  - Potential for noncompliance, related to knowledge deficit and embarrassment
  - Impaired skin integrity, related to lesions and pruritus

Client Receiving Lindane (Kwell) (continued)

- Planning—client will
  - Be free of lice or mites and experience no reinfection
  - Verbalize understanding
    - How lice and mites are spread
    - Proper administration of lindane
    - Necessary household hygiene
    - Need to notify close contacts of infestation

Client Receiving Lindane (Kwell) (continued)

- Planning (continued)
  - Demonstrate understanding of drug’s action
  - Exhibit intact skin free of secondary infection, irritation
Client Receiving Lindane (Kwell)

• Implementation
  – Monitor for presence of lice or mites
  – Apply lindane properly
  – Inform client and caregivers about proper care of clothing and equipment

• Evaluation
  – Client and significant others are free of lice or mites and reinfection
  – Client verbalizes understanding
    • How lice and mites are spread
    • Proper administration of lindane
    • Necessary household hygiene

• Evaluation (continued)
  – Client has notified close contacts of infestation
  – Client accurately states drug’s action and side effects
  – Client’s skin is intact and free of secondary infection and irritation

Clients Receiving Isotretinoin (Accutane)

• Assessment
  – Obtain complete health history
    • Allergies, drug history, possible drug interactions
  – Obtain pregnancy and lactation status
  – Assess for history of psychiatric disorders
  – Assess vital signs to obtain baseline information

• Nursing diagnoses
  – Disturbed body image, related to presence of acne
    • Also to possible worsening of symptoms after initiation of treatment
  – Decisional conflict, related to desire for pregnancy and necessity of preventing pregnancy during therapy with isotretinoin
  – Noncompliance, related to length of treatment time or failure to use effective contraception
  – Impaired skin integrity, related to inflammation, redness, and scaling secondary to treatment
Clients Receiving Isotretinoin (Accutane)

- Planning—client will
  - Experience decreased acne, without side effects or adverse reactions
  - Demonstrate acceptance of body image
  - Demonstrate understanding of drug's action
  - Utilize contraceptive measures to prevent pregnancy while taking medication
  - Comply with treatment regimen

Clients Receiving Isotretinoin (Accutane) (continued)

- Implementation (continued)
  - Monitor CBC, blood lipid levels, glucose levels
  - Monitor liver-function tests, eye exam, GI status, urinalysis
  - Monitor for vision changes
  - Monitor alcohol use and skin problems

Clients Receiving Isotretinoin (Accutane)

- Implementation
  - Monitor lab studies, including blood glucose
  - Discuss potential adverse reactions to drug therapy
  - Monitor for cardiovascular problems
  - Monitor emotional health

Clients Receiving Isotretinoin (Accutane) (continued)

- Evaluation—client
  - Reports decreased acne, without side effects or adverse reactions
  - Verbalizes acceptance of body image
  - Accurately states drug’s action and side effects
  - Utilizes contraceptive measures to prevent pregnancy
  - Keeps all scheduled appointments and laboratory visits for testing

Drugs for Acne and Related Disorders

Table 48.3 Drugs for Acne and Related Disorders

Drugs for Psoriasis

Table 48.6 Drugs for Psoriasis
## Drugs for Psoriasis

### Table 48.6b Drugs for Psoriasis