

# Drugs for Acne, Eczema, Psoriasis

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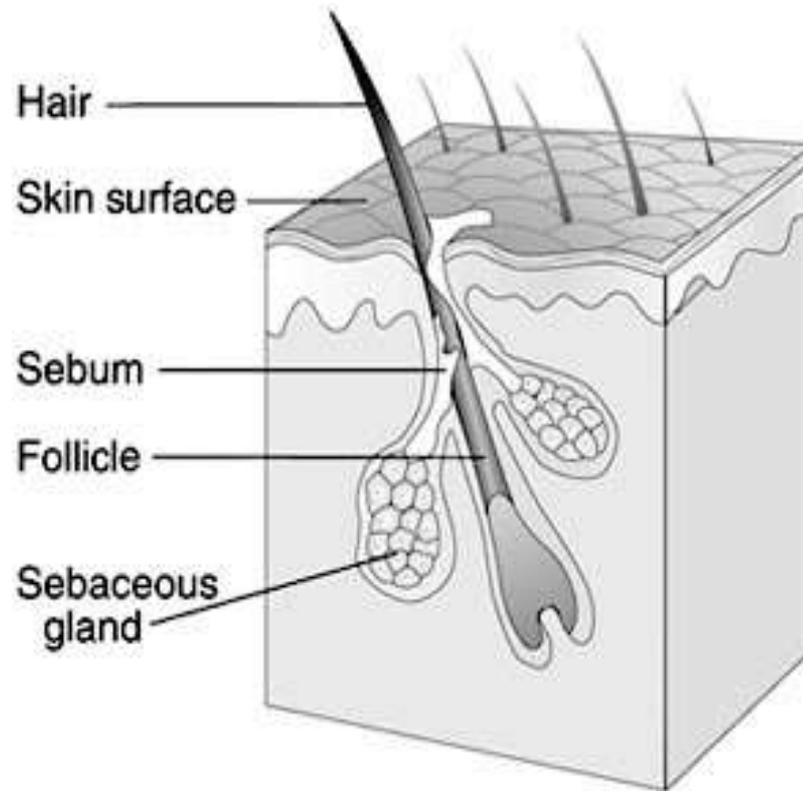
# Acne

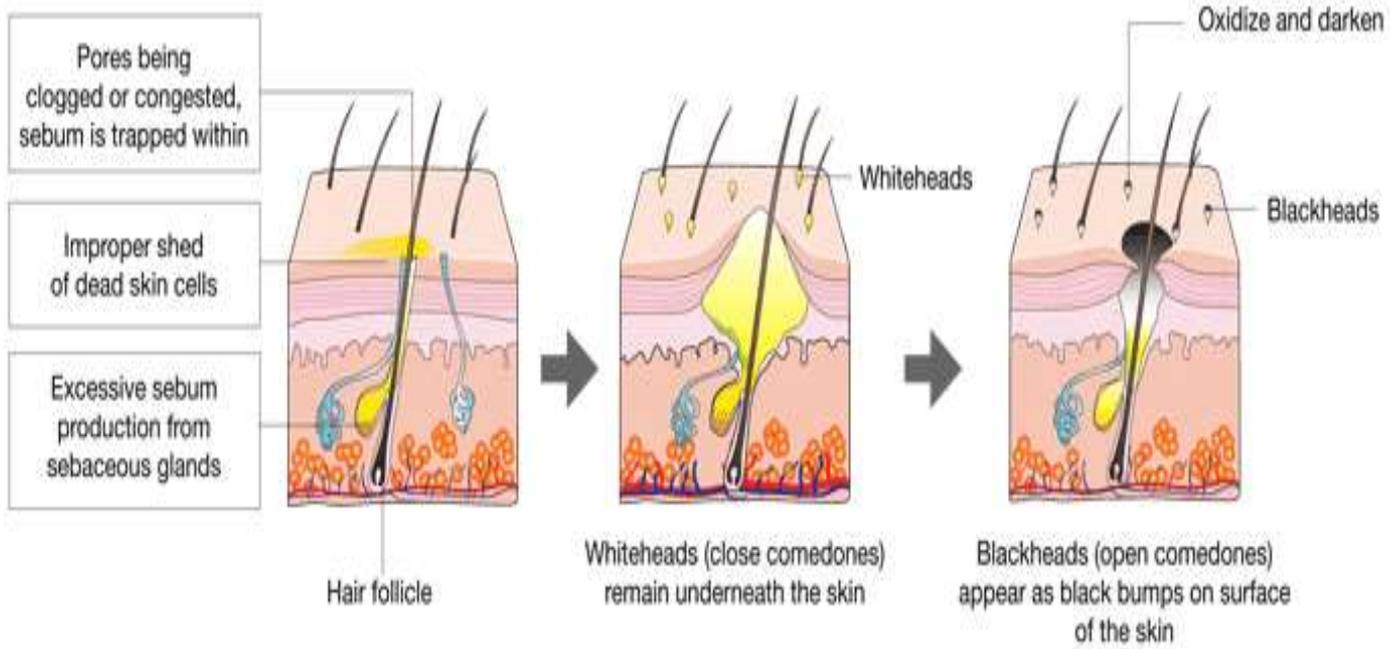
- **Definition:** is a common skin disorder caused by **increased sebum production, abnormal follicular keratinization, proliferation of Propionibacterium acnes and inflammation**
- Cystic acne or simple acne
- Mild, moderate, severe
- **It affect 85% of young population**

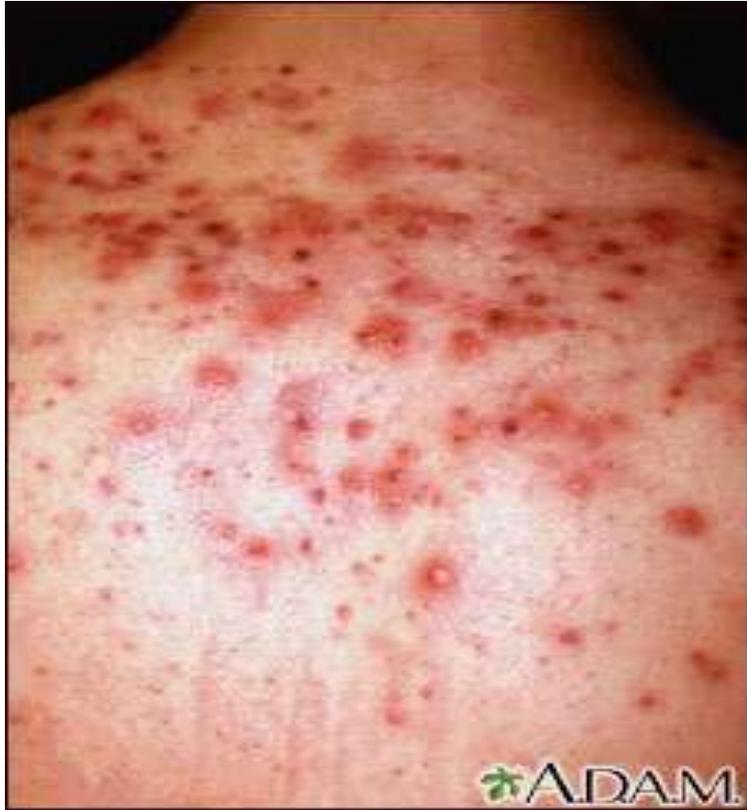
# Pathophysiology:

- Increases in sebum production
- Increase levels of androgens
- Occlusion of pilosebaceous duct
- Bacterial colonisation and release of inflammatory mediators

# Schematic view of hair follicle & sebaceous gland







# Factors that affect acne:

- Inherited
- Increase activity of sebaceous glands
- Food
- Pituitary factors
- Cosmetic acne
- Tropical acne (heat, humidity)
- Excessive washing

# Types of Acne

- Acne adolescents ( premenstrual)
- Infantile acne
- Cosmetic acne (block sebum)
- **Acne medicinosa:** steroids, androgens, anti-epileptics, anti-TB, vit D overdose, chlorpromazine

# Treatment of Acne

- Keratolytic (exfoliating, peeling) formulations
- Systemic or topical antimicrobial therapy
- Vitamin A (retinoic acid) derivatives  
(retinoids)
- Hormone therapy

# Treatment of Acne

- **Keratolytic (exfoliating, peeling) formulations:**
  - Unblock pilosebaceous ducts e.g. benzoyl peroxide, salicylic acid
  - Side effects: skin dryness, stinging
- **Systemic or topical antimicrobial therapy:**
  - Topical: Erythromycin, clindamycin (Dalacin)
  - Systemic: Doxycycline, clindamycin, erythromycin, Tetracycline

# Vitamin A (retinoic acid) derivatives:

- Are used in **moderate, severe acne**
- reduce sebum production and keratinisation
- **Vitamin A is teratogenic**
- **Tretinoin (Retin-A)** is applied topically, should be avoided during summer and pregnancy, benefit is seen within 10 weeks

- **Isotretinoin (Roaccutane)** orally is highly effective, is serious teratogen, used in severe cystic cases, where other measures have failed
- Contraindicated in pregnancy
- **Side effects:** mood change, severe depression, ↑TG, ↑liver enzymes, ↑ cholesterol, ↑ glucose, myalgia, arthralgia, fatigue

# Hormone Therapy:

- **Is limited to treat acne in females**
- Reduce androgen production **antiandrogen (cyproterone)** or effect by using **oestrogen**
- **Cyproterone** is used with **ethinylestradiol** for **severe acne**
- 50 microgram of oestrogen diminishes sebum secretion by 40%

# Eczyrna

- Also known as **dermatitis**
- Is **inflammatory response of skin** caused by external and internal factors
- Aczyrna cronologically is divided into: **acute, subacute, and chronic**
- **Eczyrna symptoms:** Itch, redness, thickening, blisters, crusts

# Classification of eczema

- **Exogenous (contact dermatitis):**
  - inflammatory response of skin caused by a substance (exogenous factor)
- **Endogenous eczema:**
  - Atopic dermatitis

# Causes of contact dermatitis

- **Clothes:** nylon, polyester, silk, cotton, wool, rubber gloves, plastic, leather, dye
- **Cosmetics:** lipsticks, perfumes, deodorants, hair dyes, eye makeup, shaving creams, creams, shampoos
- Nickel (false jewelry), cobalt, cement
- **Housewife eczema:** caused by detergents (very common in Jordan)

# Treatment of contact dermatitis

- **It is very important to avoid the cause of eczema**
- **Hydration**
- **Moisturisers**
- **Topical and systemic steroids:** betamethasone, clobetasol, dexamethasone, hydrocortisone
- **Antihistamines**
- **Immunomodulators:** tacrolimus (Protopic)



# Endogenous eczema

- **Atopic dermatitis:**
- It is type of dermatitis associated with **atopy**
- **Atopy** is **genetically determined hypersensitivity** characterised by increased IgE and susceptibility for **hay fever (allergic rhinitis), asthma, atopic dermatitis**
- Prone to develop anaphylactic allergic reactions to food or insect bite
- Family history, pruritus
- **Age of onset over 3 months**

# Atopic dermatitis



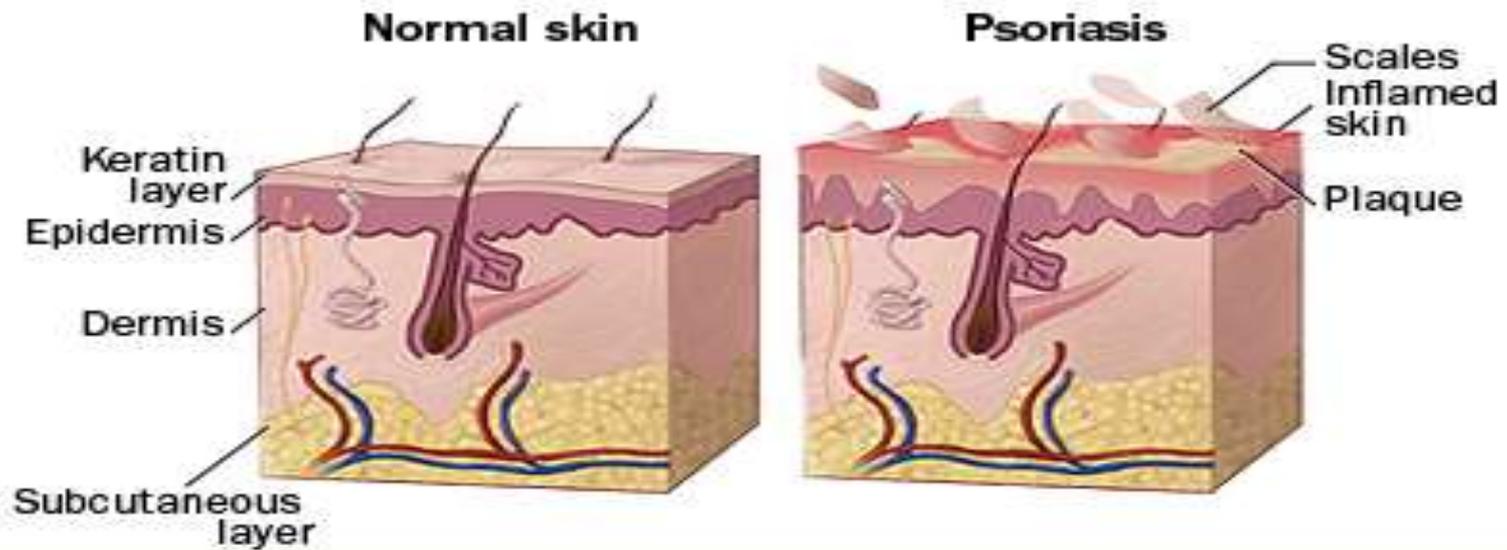
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- **Drug treatment:**
  - Steroids (lotions, ointments)
  - Antibiotics
  - Antihistamines

# Psoriasis

- is a **common skin condition** that causes **skin redness and irritation**
- Most people with psoriasis have **thick, red skin with flaky, silver-white patches called scales**
- commonly begins between ages 15 and 35
- It is not contagious
- Usually, skin cells grow deep in skin and rise to surface about once a month
- In persons with psoriasis, this process is too fast. Dead skin cells build up on skin's surface

In psoriasis, the life cycle of skin cells greatly accelerates, leading to a buildup of dead cells on surface of epidermis



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ADAM.

# Psoriasis

- Psoriasis is characterised by epidermal **thickening and scaling**
- It commonly **affects extensor surfaces (elbows, knees) and scalp**
- There is increased epidermal undifferentiated cell proliferation & inflammation of epidermis & dermis

- **Drugs are used to:**
  - Dissolve keratin (keratolysis)
  - Inhibit cell division

- Treatment of psoriasis will depend on patient's sex, age and severity of condition
- **Topical therapies** such as **calcipotriol, tar or dithranol-containing compounds** should be the mainstay of **limited mild psoriasis**
- **Topical corticosteroids** can be used for psoriasis
- **Phototherapy** is useful for **widespread psoriasis** where compliance with topical treatments is difficult

- **Resistant disease** is best managed by **retinoids, methotrexate, ciclosporin, Ultraviolet B (UVB) plus dithranol and Ultraviolet A with psoralen (PUVA) + acitretin**, to reduce the unwanted effects of any single therapy
- **Hydroxyurea and specific biological agents (immunomodulators)** are useful for **severe cases**

- **Dithranol: (antimitotic)**
- Proliferated cells may be eliminated by *dithranol* preparation applied to lesions (**but not on face or scalp**) for 1 h, and **then removed as it is irritant to normal skin**
- Disadvantages: unpleasant smell, stain skin & clothing
- It is used daily until lesions disappeared
- **Coal Tar (antimitotic)** preparations are used in a similar way, are **less irritating to normal skin** and are commonly **used for psoriasis of scalp**, disadvantages are smell unpleasant, stain skin & clothing

# *Dithranol*



# Coal Tar



- **Topical corticosteroids (CS):**
- act principally by **reducing inflammation**

- **Calcipotriol** is analogue of **calcitriol**, the **most active natural form of vitamin D**. They inhibit cell proliferation and encourage cell differentiation
- **Vitamin A** (retinols) plays role in epithelial function, and retinoic acid derivative ***acitretin* (orally) inhibits hyperkeratosis**
- **Acitretin** should be used in courses (6-9 months). It is **teratogenic**, like the other vitamin A derivatives

- **UVB light** is effective in **guttate psoriasis** and **potentiates effects of topical agents** such as **calcipotriol, antimitotic agents like tar and dithranol**

# Guttate Psoriasis



# Immunomodulators

- **Ciclosporin:**
- **It is reserved for patients unresponsive to other therapies**
- It has a **rapid onset of action** and is useful in achieving remissions in all forms of psoriasis
- Monitoring of **blood pressure and renal function** is mandatory
- **Severe adverse effects**, including **renal toxicity**, preclude its being used as long-term suppressive therapy

- **Folic acid antagonists, e.g. methotrexate**, can also suppress epidermal activity and inhibit T and B lymphocytes
- Are especially **useful when psoriasis is severe**
- Platelet count, renal & liver function must be monitored regularly