

PASSION ACADEMIC TEAM

*YU - MEDICINE*

# MUSCULOSKELETAL SYSTEM

Sheet#8 - Pharmacology

Lec. Title : Anti-Microbial Agents & Acne  
Preperations ( Part 2 )

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If you come by any mistake , please  
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# Topical Antifungal



## Sheet #1

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**Topical for acne → erythromycin**

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**Systemic → Tetracyclin**

# FUNGAL INFECTIONS

## Superficial Infections

- Tinea (dermatophyte) infections
  - Tinea pedis, corporis, cruris, capitis, etc
- Onychomycosis
  - Infection of finger/toenails by dermatophytes
- Seborrheic dermatitis
- Vaginal candidiasis (yeast infection)
  - Most common species is *C. albicans*, though other spp are on the rise
- Oropharyngeal (thrush) and Esophageal candidiasis
  - Infection can spread from oral mucosa into esophagus



## Sheet #2

Tinea capitus → (head) موجودة في الرأس

Tinea pedis → (foot) موجودة في القدم

Tinea cruris → in genital organs

Seborrheic dermatitis → القشرة بالشعر

Oropharyngeal (thrush) → broad spectrum antibiotic تحدث نتيجة استخدام

Vaginal candidiasis → Systemic antifungal يستخدم

# Nystatin

- is a **polyene** antifungal drug with a ring structure mechanism of action
- **MOA:** bind to the fungal cell membrane component ergosterol, leading to *increased fungal cell membrane permeability*
- Too toxic for systemic use, Nystatin is limited to the **topical treatment of superficial infections caused by C. albicans.**
- Uses: candidiasis (thrush), mild esophageal candidiasis, and vaginitis.

## Sheet #3

Nystatin: 1) Polyene → Many double bonds

2) Used for mild cases

3) It acts by making pores in the cell membrane of the fungi

4) Amphotericin B يشبه ال

## 2. Antifungal Azoles

- Azoles are synthetic drugs with broad-spectrum fungistatic activity.
- Azoles can be divided into two groups:
  1. the older *Imidazole*  
(clotrimazole, ketoconazole, miconazole)
  2. the newer *Triazole*  
(fluconazole, itraconazole, and voriconazole),



## Sheet #4

Azoles → مركبات تحتوي على حلقة خماسية فيها كربون و نيتروجين تسمى  
IMIDAZOL OR sulfersinzole → heterocyclic compounds تسمى

Antifungal ملاحظة: مش كل ال azoles تعتبر

1) imidazole: -ketoconazole → topical/ systemic

2) Triazole: -Itraconazole + fluconazole + voriconazole → Systemic and skin fungal infections

\*itraconazole → aspergillus also

Pozaconazole → candida & aspergillus

# Clotrimazole

✓ used in the topical treatment of oral, skin, and vaginal **infections with C. albicans.**

\* (لأنه امتصاصه قليل) (topical)

✓ It is also employed in the treatment of infections with **cutaneous dermatophytes.**

✓ less than 10% of the drug is systemically absorbed.

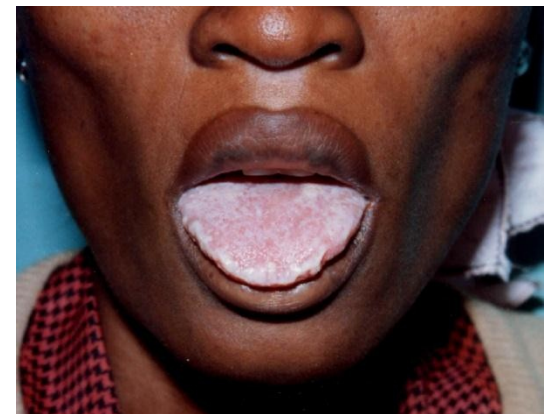


## Ketoconazole (Nizoral®)

- ✓ can be absorbed orally, but it **requires an acidic gastric environment.**
- useful in the treatment of **cutaneous and mucous membrane dermatophyte and yeast infections,**
- Ketoconazole is usually effective in the treatment of *thrush*
- *\*Ketoconazole → topical and systemic and oral,*



*Thrush*



# Itraconazole \*(systemic infections)

Orally

It is the drug of choice for all forms of *sporotrichosis*  
*rose-gardeners' disease*



### 3. Allylamines

**MOA**—inhibit **ergosterol synthesis**, thus affecting fungal cell membrane synthesis and function.

1. **Naftifine**\*(topical infections) is available for topical use only in the treatment of cutaneous dermatophyte and Candida infections.

2. **Terbinafine**\*(topical and systemic infections) is available for topical and oral tablet in the treatment of **dermatophyte skin and nail infections**

**\*(Both naftifine and terbinafine affects the cell membrane).**





## 4. Tolnaftate

is an antifungal agent effective in the topical treatment of dermatophyte infections and **tinea**

## 5. Griseofulvin\*(Systemic for skin infections(fungostatic))

MOA: it **inhibits fungal growth** by binding to the microtubules responsible for mitotic spindle formation.

- The drug **binds to keratin precursor cells** and newly synthesized keratin in the stratum corneum of the **skin, hair, and nails**, stopping the progression of dermatophyte infection.
- Is an oral fungistatic agent used in the **long-term treatment of dermatophyte infections**

# Topical Antiviral

# HERPES INFECTIONS

- **HSV1**

- Herpes labialis or “cold sores”, fever blisters



- **HSV2**

- Genital herpes
- Acquired through sexual contact, lifelong recurrent infection
- Can be asymptomatic, still transmissible

- **Herpes Zoster\* (الجدري)**

- Varicella zoster virus
- Causes chicken pox in children
- \*Encephalitis ويصيب CNS ويسوي من اخطر الامراض لانه ممكن يتحول ويترك skin



# Antivirals For Herpes Infections

- When would you use topical for what indication
- Acyclovir is only one available topically
- **Acyclovir (Zovirax®)** (Topical/oral infections)
  - Oral capsule, tablet, and IV
  - Oral suspension
  - Topical cream, ointment



- Valacyclovir (Valtrex®)\* (oral/systemic infections)
  - Oral tablet
- Famciclovir (Famvir®)\* (oral and systemic infections)
  - Oral tablet

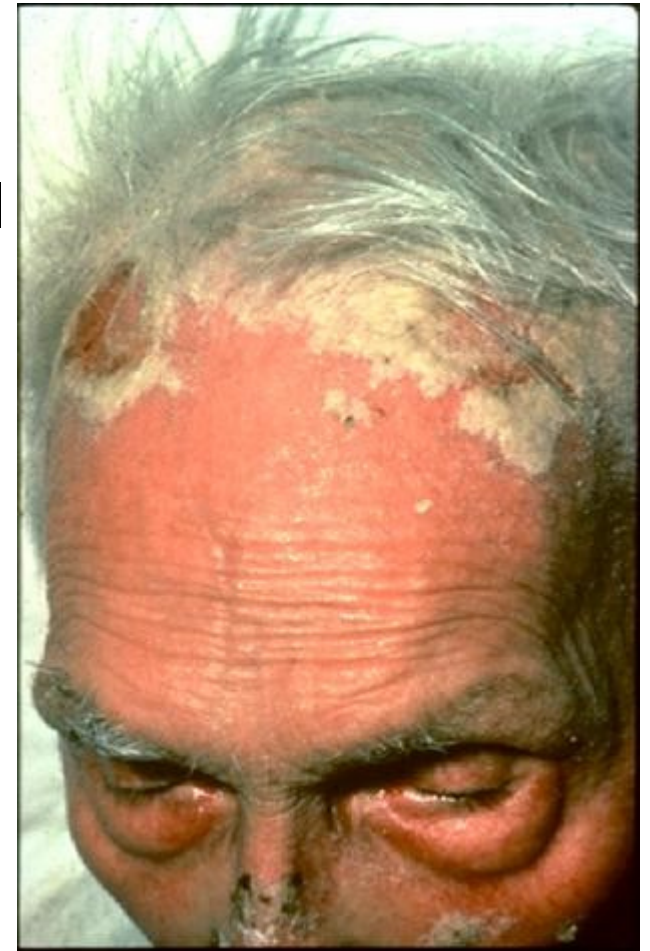


# Treatment of Common skin disorders



# TREATMENT OF SEBORRHEIC DERMATITIS\* (القشرة بالرأس)

- Can be suppressed but not cured
- Mild topical corticosteroids useful for acute forms (1% to 2% hydrocortisone)
- Once controlled, maintenance with medicated shampoos that act against yeast, eg, selenium sulfide, ketoconazole, tar shampoos\*  
topical corticosteroid → للتقليل من القشرة
- \*If its uncontrolled we use ketoconazole or some types of shampoos





# ROSACEA

Diffuse erythema, with papules.

Location: cheeks, forehead & chin

Nose: thickened, erythematous

rhinophyma.

Common in fair-skinned persons of all ages

Common symptom: Recurrent facial flushing from a variety of stimuli (sunlight, alcohol, hot beverages, drugs that cause vasodilation)

Chronic condition with frequent flares



## Sheet #5

Rosacea:occurs when an indivisual get exposed to some type of stress either by sunlight or by eating something that is hot,we will see that his face begins to turn red and some some papules that are red in color also and Rhinophyma is seen

# TREATMENT OF ROSACEA

- Avoid skin irritants, strong soaps
- Reduce sun exposure: use sunscreens
- For moderate to severe flares:  
oral antibiotics (tetracyclines, eg, doxycycline, minocycline) or erythromycin
- For mild cases and maintenance:  
topical antibiotics (erythromycin, clindamycin, metronidazole)
- Severe or refractory rosacea:  
some rosacea patients have very severe outbreaks and do not respond to topical treatments or oral antibiotics. In those cases, isotretinoin can be considered at low doses and monitored closely by their dermatologist.

**\*(severe flares → systemic drugs)**

# Sheet #6

We give antibiotics because it has some elements of reducing inflammation ~~NOT~~  
because there is an infection because in rosacea there is vasodilation in the blood  
vessels of skin

Note that not all antibiotics has anti-inflammatory effects

\*DON'T use topical NSAID

اذا كانت الحالة severe وما كان في استجابة لل Oral or topical انا هون بعطي

Vitamin A → (isotretinoin) which has an anti-inflammatory activity



# Atopic dermatitis (eczema)

- **eczema is a condition that makes your skin red and itchy. It's common in children but can occur at any age. Atopic dermatitis is long lasting (chronic) and tends to flare periodically. It may be accompanied by asthma or hay fever. No cure has been found for atopic dermatitis.**



Atopic يعني نتيجة حساسية\*

# Atopic dermatitis (eczema)

## Treatment

- emollients (moisturisers) – used every day to stop the skin becoming dry.
- topical corticosteroids – creams and ointments used to reduce swelling and redness during flare-ups. \*(anti-allergy)
- Apply an anti-itch cream to the affected area.
- Take an oral allergy or anti-itch **medication**
- Don't scratch.
- Apply bandages.
- Take a warm bath.
- Choose mild soaps without dyes or perfumes.



**No more Study sheets :D**  
**don't worry** 😄💧



تم بحمد الله اخر تفريغ بهذا الفصل وموفقين شغف



وفالكم النجاح والعلامات العالية



واعذرونا اذا قصرنا



نلتاقم الفصل الجاي بأذن الله...

THANK YOU!

*thank you!*