Antifungal Drugs

Fungal CM disruption: nysta and ampho-B
Ergosterol synthesis inhibition: Azoles and Allylamines
Glucan synthesis inhibition: Echinocandins
Nucleic Acid synthesis affectation: Flucytosine

Azole

Inhibition of synthesis of ergosterol: Inhibition of fungal CYP3A, Lanosine 14 a demethylase

Imidazole

Ketoconazole

Oral and topical; oral form are highly hapatotoxic; High pH decreases absorptionthus cannot be combined with TIDINE and PRAZOLE family

Sungal scalp inf.; Corticosteroid suppression; less sytemic use (orally)

Triazole

Itraconazole

Oral only; Highly bound to proteins; Metabolized to an active metabolite (hydroxyitraconazole;CYP3A4 inhibitor; increase absorption with food and low pH); less hepatotoxic but can cause stevens-johnson syndrome

Fluconazole

High water soluble; oral and IV; high oral bioavailability; inhibitor of 3A4, 2C9 and 2C19

CNS and Eye fungal infection

Alyllamine

Terbinafine

Inhibits fungal squaline epoxidasethrough inhibition of aqualene monooxygenase enzyme; 99% bound to plasma protein; Accumulates in skin, nails and adipose tissue; metabolize in the liver and excreted through urine and feces

Dual effect of terbinatine: FUNGISTATIC due to ergosterol defieciency; FUNGICIDAL as an effect of squaline accumulation and ergosterol defeciency

ORALLY: Onychomycosis and Tinea capitis

Topical (cream/spray): dermatophytic infection cause by: Tinea corporis; Tinea cruris, tinea pedis; Cutaneous candidiasis;Tinea versicolor

Polyene antibiotic

Amphotericin B

An amphoteric polyene macrolide antibiotic derived from streptomyces; Binds to ergosterol causing leakage-. cell death; water insoluble; Apho B + Na desoxycholate- IV infusionfor systemic inf. (colloid form) and can also be use as topical; orally for upper GIT

90% bound to plasma protein (b-lipoprotein); 2-3% at CSF; excretion thru kidneys

Disseminated inf. cause by aspergillus and candida; synergism with flucytosine increses its effect.

ADVERSE EFFECT: Fever and chills (ABCD> C-AMB> ABLC> L-AMB); nephrotoxicity (C-AMB> ABLC> L-AMB> ABCD); Anemia; Hypokalemia; Hypomagnesemiia; headache; tinitus; nausea;vomiting

Fomulation:

1. CONVENTIONAL AMPHOTERICIN B (C-AMB)- Lyophilized powder for injection; formed colloid micture in D5 wtaer.
2. Liposomal Amphotericin B (L-AMB)- Small inulamellar formulation; Lyophilized powder + D5 water; Plasmaconcentration levels equivalent to C-AMB
3. Amphoterecin B Lipid Complex (ABLC)- Amphotericin B in LIPDS; added to D%water; Lower plasma conc. than C-AMB
4. Amphotericin B Colloidal Dispersion (ABCD)- contains equimolar amounts of Ampho-B and cholesteryl sulfate for injection; Colloidal formation; much lower plasma conc. than C-AMB

Nystatin

Not absorbed from the GIT, Skin and mucous membrane.

Same mechanism with ApPOREtericin B. Too toxic for parenteral use;

Use mainly for local antifungal effect; For canida infection; Oropharygeal thrush; Vaginal candidiasis; Intertrigenous candida infection.

Flucytosine

echinocandins

Greseofulvin