

Fungal Infections

"Opportunistic Infections":	Candidiasis:
- Wide spread use of broad spectrum of Antibiotics	- Elderly
- HIV patients	- Diabetic patients
- Immunosuppressants and cancer chemotherapy patients	- Pregnant women
	- Burn wound victims

Fungal Infection Treatments

Table 53.1 Some clinically significant fungal infections and a typical first choice of antifungal drug therapy

Organism(s) responsible	Principal disease(s)	Common drug treatments
Yeasts	Cryptococcus neoformans	Meningitis
Yeast-like fungus	Candida albicans	Thrush (and other superficial infection)
		Systemic candidiasis
Filamentous fungi	Trichophyton spp., Epidermophyton floccosum, Microsporum spp., Aspergillus fumigatus	All these organisms cause skin and nail infections and are referred to as 'linea or 'ringworm'
		Pulmonary aspergillosis
		Verticillium, amphotericin, caspofungin, other azoles
Dimorphic fungi	Histoplasma capsulatum, Coccidioides immitis, Blastomyces dermatitidis	Histoplasmosis, Coccidioidomycosis, Blastomycosis

Superficial Fungal Infections:

Dermatomycoses: skin, hair, nails (onychomycoses)

- Candidiasis
- Tinea versicolor
- Dermatophytoses

Dermatophytoses:

- *Trichophyton, Microsporum, Epidermophyton*
- Tinea capitis
- Tinea cruris
- Tinea pedis
- Tinea corporis (**Treatment:** Clotrimazole 2% cream, apply tds for 2 weeks after lesion has cleared)

Clinical Features:

- Itchy ring-like patches
- Raised borders
- Patches slowly grow bigger = as patches extend, a clear area develops in the center which may become hyperpigmented in dark skin.

Tinea Versicolor:

Oral Candidiasis (Thrush):

- Presents: painful creamy white patches, can be scraped off tongue and buccal mucosa.
- Common in healthy babies (up to 1mo)
- **Risk Factors:** Poor Oral Hygiene, Immunosuppression, Prolonged use of broad spectrum antibiotics or corticosteroids (including inhaled), Certain chronic diseases, Trauma
- **General Measures:** Identify underlying cause, Improve oral hygiene, Ensure proper fitting dentures

Treatment:

- Nystatin suspension, oral, 100 000 IU/mL, 1ml, 6 hourly after each meal/feed for 7 days.
- = Keep in contact with affected area for as long as possible prior to swallowing
- = In older children, ask child to swirl in mouth prior to swallowing
- = In infants: apply to front of mouth and spread around mouth with clean finger
- = continue for 48hrs after cure

Tinea Capitis:

Round or patchy bald areas with scales and stumps of broken of hair

Avoid shaving head in children

Don't share combs and hair brushes = Contagious

Treatment:

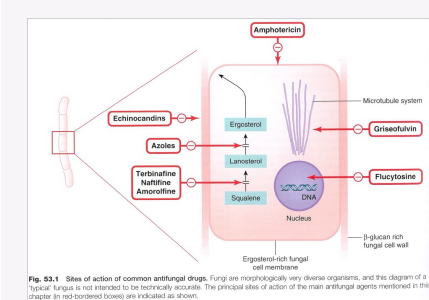
- Children: Fluconazole, oral, 6mg/kg once daily for 28 days
- Adults: Fluconazole, oral, 200mg once daily for 28 days

Systemic (Disseminated) Fungal Infections:

- Cryptococcal meningitis
- Candidiasis
- Pulmonary aspergillosis
- Histoplasmosis

Candida Oesophagitis:

Antifungal: Mechanisms of Action



Classes of Antifungal Treatment

Antifungal antibiotics	Synthetic antifungal drugs	Other
Polymers antibiotics	Azoles	Flucytosine**
Amphotericin B	Imidazole	Terbinafine
Nystatin*	Ketoconazole	
	Miconazole*	
Griseofulvin	Triazoles	
	Bifonazole*	
Echinocandins	Clotrimazole*	
	Econazole*	
Anidulafungin**	Fluconazole	* Mostly topical agents
Caspofungin**	Itraconazole**	** Second line / severe infections
	Posaconazole**	
	Voriconazole**	

Amphotericin B:

- **Drug of Choice** of severe systemic mycoses
- pks: administered IV, eliminated slowly in urine
- !Nephrotoxicity, hypokalemia
- High probability of AEs: drugs tox and administration
- NB: toxicity monitoring (dosage and duration NB)

Nystatin

- GI absorption is negligible
- Most of dose excreted in stool
- safe in pregnancy
- MOA: same as amphotericin B

Fluconazole:

Treatment for: Candidiasis, CCM (maintenance txt)

Pks: D-wide, CFS; Unchanged in urine (DA)

- WEAK INHIBITOR of P450

- also implicated for dandruff/ seborrhoeic dermatitis

- Selenium sulphide (Selsun)

- Zinc pyrithione (Head and Shoulders)

- Soap: Sulphur (10%) and Salicylic acid (3%)

- Oesophageal involvement in HIV infected patients with oral candidiasis who have pain or difficulty swallowing

- Maintain hydration

- Fluconazole 200,g po daily for 14 days

- Refer: unable to swallow, poor response to fluconazole



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Published 24th June, 2018.

Last updated 24th June, 2018.

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