31. SPECTRUM OF ACTIVITY, PHARMACOLOGY AND CLINICAL INDICATIONS OF ANTIFUNGAL AGENTS

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Introduction. Fungal infections have shown an increase in recent decades. Continued advancement of medical science offers life-saving treatment options for a variety of hematologic, oncologic, and rheumatologic conditions. Immunosuppression, a common therapeutic side-effect, predisposes patients to invasive fungal infections, which are escalating in prevalence. The development of effective, well tolerated antifungals has lagged behind the advances of antibacterial therapy. An antifungal agent is a drug that selectively eliminates fungal pathogens from a host with minimal toxicity to the host. Bacteria are prokaryotic and hence offer numerous structural and metabolic targets that differ from those of the human host. Fungi, in contrast, are eukaryotes, and consequently most agents toxic to fungi are also toxic to the host. Furthermore, because fungi generally grow slowly and often in multicellular forms, they are more difficult to quantify than bacteria.

Aim of study. The research is aimed to analyze bibliographic data of antifungal drugs used as remedies for chronical and/or systemic fungal infections, their toxicity and fungal drug resistance.

Methods and materials. Theoretic systemic research, dates and information analysis based on international facts: PubMed, Medline, Environmental Issues & Policy Index, Google Academic etc.

Results. Drugs for systemic antifungal treatment include the following: Amphotericin B (and its lipid formulations); Various azole derivatives (fluconazole isavuconazole, itraconazole, posaconazole, and voriconazole); Echinocandins (anidulafungin, caspofungin, and micafungin); Flucytosine. Amphotericin B, an effective but relatively toxic drug, has long been the mainstay of antifungal therapy for invasive and serious mycoses. However, newer potent and less toxic triazoles and echinocandins are now often recommended as first-line drugs for many invasive fungal infections. These drugs have markedly changed the approach to antifungal therapy, sometimes even allowing oral treatment of chronic mycoses.

Conclusion. With the advent of the polyenes, azoles, and fluorocytosine, previously fatal infections can be treated now. However, as modern medicine continues to extend life through aggressive therapy of other life-threatening diseases such as cancer, there is an increasing population at risk for opportunistic fungal infections. Such patients represent a special challenge because they often are left with little host immune function. Therefore, chemotherapeutic agents should be fungicidal and not just fungistatic. The search continues for fungicidal agents that are nontoxic to the host.