

Treatment and Prevention of Fungal Infections

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Objectives

Having participated in this lecture, the attendees will be knowledgeable about the epidemiology of invasive fungal infections, new treatment modalities and prophylactic use of various antifungal drugs.

Summary

Fungal infections have become one of most frequent and difficult-to-treat infections in not only severely immunosuppressed patients, but also in those admitted to the intensive care units with various severe, but non-malignant underlying diseases. Epidemiology of these infections has significantly changed during the past two decades. In invasive candidiasis a shift from *C. albicans* to non-albicans species occurred. While invasive aspergillosis is still the most frequent invasive mold infection, the number of non-aspergillus mold infections including zygomycosis have significantly increased especially in stem-cell recipients and in patients with acute leukemia. Several new antifungal agents have become available recently with various *in vitro* activities. However, toxicity and drug interactions occurred with some of these agents. These are a major concern and - despite widespread therapeutic use of antifungals - mortality due to invasive fungal infections is still unacceptably high. Combination of different classes of antifungals may be more effective, but solid data on this issue are lacking. Early and correct diagnosis may reverse high mortality rates and is also cost-effective, but only a few diagnostic modalities (i.e. high-resolution CT-scan, serum galactomannan and beta-D-glucan levels) are available. Recently, antifungal prophylaxis has been shown to be effective in patients with stem-cell transplantation and GVHD and also in those undergoing intensive chemotherapy with acute leukemia and myelodysplastic syndromes. In addition to all these therapeutic and diagnostic approaches, recovery from underlying immunosuppression seems to be most critical for a desirable outcome.

Recommended reading

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Maschmeyer G, Haas A. The epidemiology and treatment of infections in cancer patients. *Int J Antimicrob Agents.* 2008;31:193-7.

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Robenshtok E, Gafter-Gvili A, Goldberg E, Weinberger M, Yeshurun M, Leibovici L, Paul M. Antifungal prophylaxis in cancer patients after chemotherapy or hematopoietic stem-cell transplantation: systematic review and meta-analysis. *J Clin Oncol.* 2007;25:5471-89.

Maschmeyer G, Haas A, Cornely OA. Invasive aspergillosis: epidemiology, diagnosis and management in immunocompromised patients. *Drugs.* 2007;67:1567-601.