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Emerging Fungal Infections: Advances in Diagnosis, Antifungal Therapy, and Clinical Management

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Invasive fungal infections continue to present a major challenge among immunocompromised patients, transplant recipients, and individuals receiving intensive medical therapies. Early diagnosis remains difficult because of non-specific clinical manifestations and limitations of conventional laboratory techniques. This presentation reviews recent advances in molecular diagnostics, fungal biomarkers, next-generation sequencing, and imaging technologies that enable earlier detection of invasive fungal diseases. The session discusses innovations in antifungal drug development, combination therapy, host-directed treatments, and resistance surveillance. Recent clinical research evaluating novel triazoles, echinocandins, and immunotherapeutic approaches has expanded treatment options for patients with invasive aspergillosis, candidiasis, mucormycosis, and other opportunistic fungal infections. Future perspectives include precision antifungal therapy, rapid point-of-care diagnostics, and global surveillance strategies aimed at improving clinical outcomes.

Biography

Timothy J. Walsh is Professor of Medicine and Pediatrics at Weill Cornell Medicine, United States. His research focuses on invasive fungal infections, antimicrobial therapy, pediatric infectious diseases, and translational clinical microbiology. He is internationally recognized for advancing antifungal therapeutics and infectious disease research.