Antifungal susceptibility of Aspergillus Flavus recovered from clinical and environmental specimens in Iran

Khodaveisi, S. (Sadegh)[1], Badali, H. (Hamid)[2], Rezaie, S. (Sassan)[1]

1 Tehran University of Medical Sciences, Department of Medical Mycology and Parasitology, Tehran, Iran, Islamic Republic of

2 Department of Medical Mycology and Parasitology/Invasive Fungi Research Center (IFRC), Mazandaran University of Medical Sciences, Sari, Iran, Islamic Republic of

Introduction

Aspergillus flavus is the second leading cause of invasive and non-invasive aspergillosis, also most common cause of fungal sinusitis, cutaneous, and endophthalmitis in tropical countries. Since resistance to antifungal drugs has been seen in patients, susceptibility testing can helpful in defining the activity spectrum of an antifungal and determining the appropriate drug for treatment. This study describes the in vitro activities of antifungal agents already available against clinical isolates of A. flavus strains recovered from clinical and environmental specimens in Iran.

Material & methods

199 isolates of A. flavus strains (171 clinical and 28 environmental) were included in the study. All isolates were identified by typical colony and microscopic characteristics, also the species-specific identification of A. flavus strains was studied by partial sequencing of β-tubulin gene fragments. The in vitro activities of five antifungal drugs (amphotericin B, itraconazole, voriconazole, posaconazole, and caspofungine) were determined according to recommendations stated in the Clinical and Laboratory Standards Institute (CLSI) M38-A2 document.

Results

In clinical samples, A. flavus (87.5%) was significantly recovered from Sinus and Cutaneous infections specimens (P< 0.01). Caspofungin (100% of strains had MEC50 and MEC90 values of ≥0.5 µg/ml) was the most active drug, followed by posaconazole, itraconazole, voriconazole, and amphotericin B against A. flavus strains. Among the azoles, posaconazole (MICs ≥1 µg/ml) was the most potent followed by itraconazole and voriconazole. We were not able to find significant differences in antifungal susceptibilities between strains recovered from clinical and environmental specimens (P >0.01).

Conclusion

This study demonstrates that, all of A. flavus strains showed a uniform pattern of low MICs for all antifungal agents. Caspofungin and triazoles had better in vitro activity against the A. flavus strains.