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Abstract (oral session)

Antifungal susceptibility patterns of Scedosporium and Pseudallescheria species

M. Lackner*, S. de Hoog, P. Verweij, M. Najafzadeh, C. Klaassen, J. Meis (Innsbruck, AT; Utrecht, Nijmegen, NL; Mashhad, IR)

Introduction: Scedosporium infections are among the most difficult to treat fungal infections, as many strains carry multiple resistances against most or all systemically active antifungal compounds. In contrast to Aspergillus strains, Scedosporium strains are also able to cause deep infections in immunocompetent persons, e.g., after a near-drowning event or after traumatic inoculation. Since the separation of Pseudallescheria boydii and P. apiosperma in 2010, limited data on species-specific susceptibility patterns of these and other species of Pseudallescheria and its anamorph Scedosporium have been reported. This study presents susceptibility profiles of a worldwide set of more than 300 Scedosporium strains from a wide variety of clinical/environmental sources. Materials & methods: Eight systemically active antifungal compounds (amphotericin B [AMB], anidulafungin [ANI], caspofungin [CAS], isavuconazole [ISA], itraconazole, [ITR] micafungin [MICA], posaconazole [POS], and voriconazole [VOR]) were tested using the micro-dilution method according to CLSI standard M38-2. Strains were identified according to state of the art taxonomic standards using amplified fragment length polymorphism (AFLP). Results and discussion: Pseudallescheria apiosperma (n = 155) and P. boydii strains (n = 76) had similar AFSP, while those of S. aurantiacum (n = 23), S. prolificans (n = 38), and S. dehoogii (n = 25) were deviant from each other. Pseudallescheria apiosperma and P. boydii were mostly susceptible to MICA, ANI, and POS, while ITR, ISA, and AMB showed poor activity. Scedosporium aurantiacum strains were susceptible to VOR only. In contrast, some strains of S. prolificans were found susceptible to ANI, MICA and CAS, while strains of S. dehoogii were most susceptible to MICA. Based on population distributions we propose epidemiological cut-off values for eight antifungal drugs against P. apiosperma and P. boydii; VOR <=4 µg/mL and <=2 µg/mL, resp.; POS <=2 µg/mL and <=4 µg/mL, resp.; and MICA <=;1 µg/mL for both species. For both species, the remaining epidemiological cut-off values were <=8 µg/mL for echinocandins and <=16 µg/mL for azoles and AMB. Conclusion: Our results suggest that VOR, POS and MICA have a potential therapeutic role for P. apiosperma, P. boydii, and S. prolificans infections.