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Evaluation of isavuconazole MIC strips for susceptibility testing of Aspergillus and Scedosporium species

Laura Trovato*[1], Antonia Palmina DI Giovanni[1], Anne Santerre Henriksen[2], Salvatore Oliveri[1]

[1]*University of Catania; Biomedical and Biotechnological Science*

[2]*Basilea Pharmaceutica International Ltd.; Development*

Background: Isavuconazole (the active moiety of isavuconazoniumsulfate) is a new triazole with an expanded-spectrum and potent activity against molds and yeasts. It has been authorized for marketing by the European Medicines Agency for use in adults for the treatment of invasive aspergillosis and for mucomycosis in adult patients for whom amphotericin B is inappropriate. Isavuconazoniumsulfate is available in both intravenous and oral formulations, with a 98% bioavailability. The objective of this study was to assess the in vitro activity of isavuconazole using gradient concentration (MIC) strips, compared with the EUCAST broth microdilution reference method.

Materials/methods: A total of 62 clinically-relevant fungal isolates comprising *Aspergillus* species (19 *A. flavus*, 18 *A. fumigatus*, 9 *A. terreus* and 8 *A. niger*) and 8 *Scedosporium apiospermum* isolates were susceptibility tested according to the EUCAST broth microdilution method (E. Def 9.3); 30 of these isolates were also tested using isavuconazole MIC gradient strips (liofilchem, Italy) on RPMI agar. MICs from the strips were read at 80% growth inhibition after 48 hours incubation at 35°C. The percent essential agreement between the two methods was calculated within a 1-fold dilution.

Results: Using the EUCAST reference method, the geometric means for the MICs were: 0.69 mg/L (range 0.125–2 mg/L) for *A. flavus*, 0.52 mg/L (range 0.125–1 mg/L) for *A. fumigatus*, 1 mg/L (range 0.5–2 mg/L) for *A. niger*, 0.31 mg/L (range 0.125–1 mg/L) for *A. terreus*, and 1 mg/L (range 0.5–2 mg/L) for *S. apiospermum*. The essential agreement between the isavuconazole MIC strips and the EUCAST reference method was 97.8%, regardless of the species tested.

Conclusions: Isavuconazole was active in vitro against *Aspergillus* species. In this study, isavuconazole MICs against *S. apiospermum* were comparable to those obtained for *A. niger*. The isavuconazole MIC strips showed good agreement with the EUCAST reference method. Isavuconazole MIC strips could be a useful alternative for susceptibility testing of *Aspergillus* species and *S. apiospermum*.