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# P0169 Visual and spectrophotometric MICs setting of azoles and amphotericin B agaisnt Aspergillus fumigatus complex are comparable using EUCAST 9.3.1methodology

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**Background:** MICs of azoles and amphotericin B against *Aspergillus* spp. according to EUCAST EDef 9.3.1 procedure requires visual determination. Spectrophotometric reading may facilitate the MIC determination. We compared the MICs of azoles and amphotericin B against *Aspergillus fumigatus* complex isolates obtained by both visual and spectrophotometric reading.

**Materials/methods:** We studied n=293 *Aspergillus fumigatus* complex clinical isolates, including six azole-resistant isolates with *cyp51A* gene mutations [$TR_{34}$L98 (n=3), G54R (n=1), G54W (n=1), G448S (n=1)]. Antifungal susceptibility of the isolates to amphotericin B, posaconazole, voriconazole, itraconazole, and isavuconazole was obtained according to EUCAST 9.3.1 (Grenier Tissue-treated plates 655180). Two different endpoints were used to obtain the MIC (a) standard visual complete inhibition of fungal growth compared with control; and (b) spectrophotometric reading at 540 nm as a fungal growth reduction greater than 95% compared to control. Essential and categorical agreements were calculated considering the visual reading as gold standard.

**Results:** The overall essential agreement with ±2 $\log_2$ dilutions was 96.6%.

| Antifungal | Essential agreement (%) | Categorical Agreement (%) | Very Major Errors (%) | Major Errors (%) | Minor Errors (%) |
|---|---|---|---|---|---|
| Amphotericin B | 99.3 | 97.8 | 0 | 0.4 | 1.8 |
| Voriconazole | 98.1 | 92.8 | 0.4 | 1.1 | 6.3 |
| Posaconazole | 97.8 | 86.7 | 0 | 3.7 | 9.6 |
| Itraconazole | 99.3 | 98.5 | 0.4 | 0.4 | 0.8 |
| Isavuconazole | 98.2 | 97.1 | 0 | 2.9 | NA |
| *A. fumigatus* senso stricto | 97.1 | 94.1 | 0 | 3.3 | 2.6 |

*Aspergillus fumigatus* "sensu stricto" (n=275), *A. lentulus* (n=8), *Neosartorya udagawae* (n=3), *A. novofumigatus* (n=2), *A. felis* (n=1). NA not apllicable.

Very major errors (an isolate classified as resistant by the standard visual MIC determination and susceptible by the spectrophotometric reading) were anecdotal and only observed in *A. felis* (n=1), and *N. udagawae* (n=1) for itraconazole and voriconazole respectively. The *A. fumigatus* isolates with *cyp51A* gene mutations were correctly classified as resistant. Major errors (an isolate classified as susceptible by the standard visual MIC determination and resistant by the spectrophotometric reading) were below 4%, and were due *A. fumigatus* "sensu stricto" (n=9) and *A. lentulus* (n=1), mostly due to MICs spectrophotometrically one two-fold dilution above the break point. Minor errors

(misclassification between resistant/intermediate strains or *vice versa*) were more commonly seen for posaconazole and voriconazole.

**Conclusions:** MICs obtained by spectrophotometric reading at 540 nm were comparable to that obtained by visual reading. Resistant isolates found in the spectrophotometric method need visual inspection to discern true resistant from artifacts that may interfere with the spectrophotometric reading.