The Effect of Phenotypic-Switching of Candida krusei on its Susceptibility towards Fluconazole and Voriconazole

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Objective:

To compare the effect of phenotypic switching of Candida krusei on its susceptibility towards fluconazole and voriconazole

Methods:

Candida krusei was revived from ATCC stock and cultured using spreading technique on Yeast Extract Potato Dextrose (YPD) agar containing 5 mg Flouose B dye. Following a 5-days incubation period, colonies showing a switch in the colour from the original were counted and considered as having a phenotypic switch in the first generation. These colonies were then subcultured on new media plates. Phenotypic switching of Candida krusei was repeated and observed for four generations. Each generation was tested for their response to fluconazole and voriconazole disks on Mueller-Hinton (MH) agar plate and incubated for 24 hours at 37°C.

Results:

Candida krusei in the first to the third generation was found to be resistant to fluconazole. In contrast, a mild susceptibility was observed in the fourth switched generation. Alternatively, Candida krusei were sensitive for all switched generations towards Voriconazole. However, the sensitivity level of Candida krusei was found to increase relative to the number of switched generations, as observed by the bigger clearance zone in the antifungal disc diffusion experiment.

Conclusion:

The susceptibility of Candida krusei towards the antifungal agents fluconazole and voriconazole was found to be greatly affected by its phenotypic status.

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