



Objectives

To study etiologic agents of invasive candidiasis (IC) and the susceptibility to fluconazole and voriconazole.

Materials and Methods

A total of 150 clinical isolates from patients with IC from different hospitals of Russia during 2011-2013 were prospectively studied. *Candida* spp. were identified with MALDI-TOF mass-spectrometry, 95 of 150 strains were identified with DNA-sequencing. Agreement of results between DNA-sequencing and MALDI-TOF mass-spectrometry was 98.95%. In vitro susceptibilities to fluconazole and voriconazole were studied by CLSI M27-A3 method (microdilution) with interpretation criteria CLSI M27-S4 (December, 2012).

Table 1. Interpretation criteria for susceptibility testing of *Candida* spp.

Antifungal agent	Species	MIC Range ($\mu\text{g/mL}$)		
		S	SDD	R
Fluconazole	<i>C.albicans</i>	≤ 2	4	≥ 8
	<i>C.glabrata</i>	-	≤ 32	≥ 64
	<i>C.krusei</i>	-	-	-
	<i>C.parapsilosis</i>	≤ 2	4	≥ 8
	<i>C.tropicalis</i>	≤ 2	4	≥ 8
Voriconazole	<i>C.albicans</i>	$\leq 0,12$	0,25-0,5	≥ 1
	<i>C.glabrata</i>	-	-	-
	<i>C.krusei</i>	$\leq 0,5$	1	≥ 2
	<i>C.parapsilosis</i>	$\leq 0,12$	0,25-0,5	≥ 1
	<i>C.tropicalis</i>	$\leq 0,12$	0,25-0,5	≥ 1

Results

Etiologic agents of IC included 8 species: *C. albicans* (52.6%), *C. parapsilosis* (16%), *C. glabrata* (13.3%), *C. tropicalis* (9.3%), *C. krusei* (5.4%), *C. guilliermondii* (1.4%), *C. pararugosa* (1.4%), and *C. dubliniensis* (0.6%). In vitro to fluconazole were susceptible 115 (76.6 %) strains, susceptible dose dependent (SDD) – 21 (14%), and resistance (R) - 14 (9.4%).

In *Candida albicans* were susceptible 77/79 (97.4%) and R - 2 (2.8%).

MICs for one strain of *C. dubliniensis* and two strains of *C. pararugosa* were respectively 0.125 $\mu\text{g/ml}$ and 1 $\mu\text{g/ml}$.

In *Candida non - albicans* were susceptible 39 (54.9%) strains; SDD were 20 (28.2%) and R – 12 (16.9%). All 20 *C. glabrata* isolates were SDD to fluconazole. Twenty *C. parapsilosis* strains were identified as susceptible, SDD – 1 strain, R - 3. All 14 *C. tropicalis* and 2 *C. guilliermondii* strains were susceptible to fluconazole.

We found that 149 (99.3 %) strains were susceptible and 1 (0.7%) strain was SDD (*C. tropicalis*) to voriconazole.

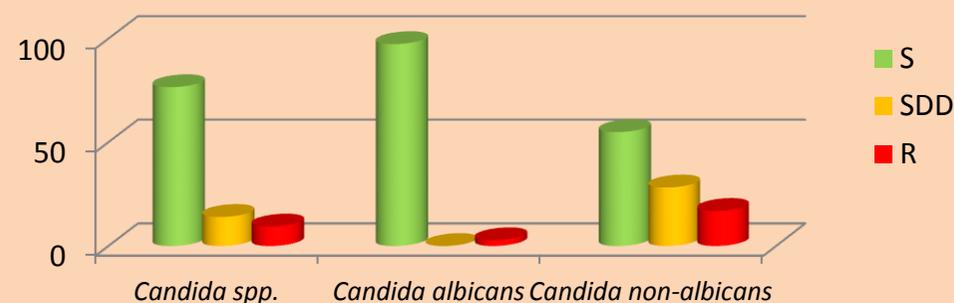


Fig.1 Susceptibility profile of *Candida* spp. to fluconazole

Conclusions

The most common species among etiologic agents of invasive candidiasis in Russia was *C. albicans* (52.6 %) followed by *C. parapsilosis* (16%) and *C. glabrata* (13.3%). Using new interpretative criteria of CLSI M27-A3 we found that 76.6 % *Candida* spp. strains from patients with invasive candidiasis in Russia were susceptible to fluconazole and 99.3% - to voriconazole.