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# Outbreak of non-Candida albicans Candida species in a tertiary hospital ICU in Spain

Maria Angeles Galan Ladero*[1], M. Pilar Luzón-García[2], M. Teresa Blanco-Roca[3], M. Teresa Blanco-Blanco[4], Rafael Jimenez-Torres[5], Antonio Candida Gómez-García[6]

[1]*"La Inmaculada Hospital". The Andalusian Health Service; Microbiologia*

[2]*La Inmaculada Hospital. Andalusian Health Service; Microbiology*

[3]*Faculty of Medicine. University of Extremadura. Centro de Investigación Biomédica En Red de Bioingeniería, Biomateriales Y Nanomedicina, Ciber Bbn.; Area of Microbiology*

[4]*Faculty of Medicine. University of Extremadura.; Area of Microbiology*

[5]*La Inmaculada Hospital. Andalusian Health Service. ; Laboratory*

[6]*Faculty of Medicine. University of Extremadura. Centro de Investigación Biomédica En Red de Bioingeniería, Biomateriales Y Nanomedicina, Ciber Bbn.; Area of Microbiology. Biomedical Sciences*

**Background:** Outbreaks of non-*C. albicans Candida* species (NCACS) in ICU have been reported. Candida colonization rate reaches up to 80% in ICU-patients hospitalized for more than a week. From March to July-2016, a multi-resistant *Acinetobacter baumannii* (MRAB-OXA-51, OXA-58) outbreak was detected in La Inmaculada Hospital-ICU in Spain as the result of an occasional limited number of health care workers to assist patients, being cross-infection probed. Simultaneously, an unusual number of candida isolates and time clustering of their isolation was observed. The aim of this study was to analyse this candida-isolation increase and compare it with similar previous periods.

**Material/methods:** A 4-month (from 1st March to 1st July-16) retrospective observational study, concurrently with the MRAB outbreak, was developed. All *Candida* spp. isolated from patients admitted to the ICU in a 176-bed hospital suggesting infection were considered. Conventional mycological methods for candida isolation were used. Identification and susceptibility were performed

by VITEK 2-System. Candida colonization was investigated by routine microbiologic surveillance cultures (throat and rectal swabs), using the semi-quantitative Leonard method. Risk factors for candida infection were recorded. Candida score (CS) was determined.

**Results:** A total of 35 candida isolates producing infection were included. NCACS represented the 51.43% of the isolates (9 *C. parapsilosis* (25.71%), 5 *C. glabrata* (14.29%), 4 *C. tropicalis* (11.43%)). *C. albicans* was the 34.29% (12 isolates). The 14.29% were identified as *Candida* ssp. For the same period of time during the five years before, the media of the candida isolates producing infection was 9 (approximately 4 times lower), being *C. albicans* the predominant specie isolated (57.12%) vs NCACS (42.88%) (25.94% *C. parapsilosis*; 8.26% *C. glabrata*; 4.67% *C. dubliniensis*; 2% *C. tropicalis*; 2% *C. krusei*). Cultures were obtained from 11 patients (6 female, 5 male; mean age: 54.73±11.41). The 63.64% of patients presented different comorbidities. The 100% suffered invasive procedures ($p<0.005$) and received extended-spectrum antibiotics ($p<0.005$). The 45.45% had been hospitalized previously. Candida-colonization level was intermediate-high (>3+) for all patients ($p<0.005$). CS was >3 for the 45.46%. Glasgow coma scale was 15 in the 90.90% of patients, and APACHE II score varied from 7 to 38. The media of days in ICU was 34.27±30.45.

**Conclusions:** 1-The candida-infection increase observed was principally caused by NCACS, mainly *C. glabrata* and C. *tropicalis*. 2-Due to these species have been related with ICU outbreaks and as result of the transitory fail in the infection control procedures a MRAB outbreak was developed in our UCI, simultaneously, and cross-infection probed for this microorganism, cross-transmission for candida was possible, too. 3-The intensity of candida colonization in critically ill patients plays an important role predicting candida infections in these patients. 4-Unusual number of *Candida* spp. isolates could be investigated as a predictor of cross-transmission for other microorganisms.