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Prospective Multicenter Observational Study of Funguria in Hospitalized Patients

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Background: Funguria is a common clinical finding especially in patients with severe illnesses. However, the significance of funguria and the urianalysis findings are still not clear.

Aims: To evaluate the prevalence of the different etiologic agents of funguria in Argentina, to define its epidemiology and to correlate direct exam findings with culture results.

Methods: Fifteen medical centers were included in this multicenter prospective observational study. The study was conducted from June to September 2013 and 240 patients were included (inclusion criteria: at least one positive urine culture for yeasts). Data on patient demographics, care unit where the patient was hospitalized, type of sample, instrumentation and urianalysis results (number of leucocytes and yeast cells per microscopic field, CFU/urine ml and yeast identification) were collected. Descriptive statistics were used to summarize continuous variables. Fisher's exact test (two-tailed) was used to evaluate the association between urianalysis results and the other collected categorical data as risk factors of funguria. A $P < 0.05$ was considered as significant.

Results: There were 240 patients enrolled (52.5% female) with a mean age of 52.3 years. 378 urine samples were obtained. From 138 patients two (95 patients) or more samples were obtained. The majority of the patients (79.6%) were cared in intermediate or intensive care units (ICU). *Candida albicans* was the most common isolated yeast (43.3%) followed by *C. tropicalis* (30%), *C. glabrata* (8.3%) and *C. parapsilosis sensu lato* (4.6%). The isolated species have no statistical relationship with either patient's age ($P = 0.06$) or the care unit ($P = 0.28$). Been hospitalized in ICU is an independent risk factor of having $\geq 10^4$ yeast CFUs/urine ml ($P < 0.0001$). Elderly ICU patients (> 65 years-old) showed the highest yeast CFUs/ml ($P = 0.023$). The presence of ≥ 5 leucocytes/400X microscopic field was statistically related with $\geq 10^5$ yeast CFUs/urine ml ($P = 0.02$).

Discussion: This multicenter study has verified previously reported findings published with smaller number of patients. In our study, 86.2% of the fungurias were produced by 4 *Candida* species. Patients with funguria were elderly and were mainly hospitalized in ICU. There was a strict relationship between the number of leucocytes in urine and the number of colonies in the urianalysis.