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LETTER TO THE EDITOR

Mortality related to candidemia and risk factors associated with non-*Candida albicans*

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To the Editor,

We read the article by Ng et al. [1], 'Incidence and mortality of sepsis, severe sepsis, and septic shock in intensive care unit patients with candidemia,' with special interest. Of note, the authors analyzed a large well-defined cohort of 161 episodes of candidemia among intensive care unit (ICU) patients with a high overall mortality (49%), mainly in septic shock patients (65%). *Candida glabrata*, *Candida parapsilosis*, and *Candida tropicalis* were the most frequent non-*Candida albicans* species [1]. Similar to the findings of Ng et al., in Brazil, some authors have observed high mortality rates in patients with candidemia (53.4–85.9%) [2].

In our center, a tertiary care university hospital, we performed a retrospective study in order to analyze nosocomial mortality related to candidemia and the risk factors associated with bloodstream infection caused by non-*C. albicans*. From January 2006 to December 2010, of 13 804 admissions we selected 248 patients over the age of 15 years with positive blood cultures for *Candida* spp.: 115 (46.4%) caused by *C. albicans* and 133 (53.6%) by non-*C. albicans*. In partial agreement with Ng et al. [1], the most frequent non-*C. albicans* species were *C. tropicalis* ($n = 54$, 21.8%), *C. parapsilosis* ($n = 31$, 12.5%), and *C. glabrata* ($n = 29$, 11.7%). Besides the ICU patients, our study analyzed the incidence density rates (ID) in other units. We showed, as expected, a higher ID of candidemia caused by non-*C. albicans* (0.67/1000 patient-days) in the ICU compared with those in other units (0.23/1000 patient-days) ($p < 0.001$). In our cohort, the multivariate analysis demonstrated that immunosuppressive status ($p < 0.0001$) and mechanical ventilation ($p = 0.0097$) were independently associated with non-*C. albicans* candidemia, as shown by other authors [3,4].

Candidemia is a severe event during hospitalization. In our series, the overall crude mortality and the 30-day mortality were 66.1% and 55.2%, respectively; higher than the overall mortality described in the ICU by Ng et al. [1]. Other studies have reported rates that varied from 32% to 55.5% according to population [3,5]. Lortholary et al. [6] found a higher 30-day death rate among ICU patients compared with non-ICU patients (odds ratio (OR) = 2.12) and increasing death rate over time (41.5–56.9%). In our study, mortality rates were similar for candidemia episodes due to *C. albicans* (69.5%) and non-*C. albicans* (63.1%) ($p = 0.1765$). A higher mortality rate (85.0%) was observed during the first week after the diagnosis of candidemia ($p < 0.001$), and the mortality rate was significantly higher among the ICU patients (78.8%) than among the non-ICU patients (61.1%) ($p = 0.0256$). The multivariate analysis revealed that age ($p = 0.0209$), diagnosis of candidemia in the ICU ($p = 0.0140$), mechanical ventilation ($p = 0.0041$), and previous use of antimicrobials

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($p = 0.0010$) were independently associated with death, as found by other authors [3,7,8].

Similarly to Ng et al. [1], we calculate the overall mortality instead of attributable mortality due to candidemia, because an accurate measure of this rate is difficult to achieve, especially in ICU settings. Considering the high mortality, the need for early recognition of candidemia and appropriate antifungal therapy are basic requirements to improve the clinical outcome.

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