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Editorial

Brazil is so far free from *Candida auris*. Are we missing something?



The emergence of the pathogenic yeast *Candida auris* has caused major concern, particularly in the United States of America.¹ Initially isolated 10 years ago from ear canal infection in Japan, *C. auris* has now clonally spread to five continents to become a real serious global health threat.² Similarly to other *Candida* species, the clinical spectrum associated with *C. auris* ranges from colonization to invasive diseases such as bloodstream infections.³ The most alarming factor associated with *C. auris* infections relates to the elevated frequency of multi-drug resistance seen with this species. Up to 90% of isolates are fluconazole-resistant, and varied susceptibilities have been reported for the other azoles (e.g., voriconazole, posaconazole and isavuconazole), amphotericin B, or the echinocandins. This sort of multi-resistant pattern has not been seen for any other species in the *Candida* genus.³

Outbreaks of *C. auris* infections have also been reported in the UK,⁴ Spain⁵ and Latin America.⁶ Due to the limited data on *C. auris* infections, isolation precautions and cleaning of equipment/environment has been extrapolated from infections due to other multi-resistant organisms.⁷ In 2016, the Pan-American Health Organization published a note alerting to the risk of *C. auris* infections in Latin America, since an outbreak had already been reported in Venezuela.⁶ Outbreaks of *C. auris* blood stream infections are very similar to Gram-negative and *Clostridium difficile* infections, in which the environment may play an important role as a reservoir of such organisms.⁵ In order to quickly implement infection prevention and control measures, accurate species identification and rapid detection of cases are critical.^{4,7} Once introduced in Brazilian hospitals, *C. auris* can disseminate quickly, which makes proper identification and implementation of infection control measures of ultimate importance.

Studies have demonstrated that *C. auris* is commonly misidentified as other yeasts when biochemical panels such as VITEK, API *Candida*, and Microscan are used for species identification.³ Misidentifications occur mostly (but not

exclusively) with *C. haemulonii*, *C. famata*, *C. guilliermondii*, and *C. sake*. Proper identification of *C. auris* can be obtained with either MALDI-Tof or ITS and D1/D2 DNA sequencing. Moreover, it is important to reinforce that laboratories using MALDI-Tof should confirm with the manufacturer that *C. auris* is included and validated in the database.

To the best of our knowledge *C. auris* has so far not been detected in Brazil, which is intriguing. Is Brazil really exempt of this emerging fungus, or are we missing something? In a recent investigation of the diagnostic capabilities of mycology laboratories in Latin America,⁸ MALDI-Tof was available for only 16.6% of centers in Brazil, whilst 15.5% of centers were able to perform fungal DNA sequencing (9.5% could do both). No active screening for *C. auris* is in place in Brazil. The isolation of yeasts with high nucleotide identity with *C. auris* (e.g., *C. haemulonii*, *C. famata*, and others) should lead centers to screen their isolates with either MALDI-Tof or DNA sequencing, in an attempt to identify *C. auris*.


To summarize, more efforts are required in Brazil to document the burden of invasive fungal diseases, especially those due to multi-drug resistant isolates. This includes not only candidaemia, but also other mycoses such as histoplasmosis, cryptococcosis and aspergillosis, just to mention some common fungal infections. Modern diagnostic tests (i.e., beta-glucan, antigen detection, fluorescence microscopy, galactomannan, MALDI-Tof, PCR, and antifungal susceptibility testing) should be made available to the different regions of the country, as well as access to modern antifungal therapy. With these in place, it will not be a surprise if *C. auris* is found to be already circulating amongst us.

Conflicts of interest

The authors declare no conflicts of interest.

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