**OBJECTIVES**

*Candida* species, as the main component of human mycobionte, are the most common cause of fungal infections in intensive care units. ICU patients with COVID-19 are more prone to fungal infections, due to various causes like mechanical ventilation, use of steroids or long-term hospitalization. There is yet no extended prospective study examining *Candida* colonization rates, epidemiology of species and predisposing factors in this population. This is the first prospective cohort study comparing the time-varying colonization features of *Candida* species in ICU patients with and without COVID-19.

**METHODS**

This study was performed between March 2021-December 2021 in intensive care units of Istanbul University, Istanbul Faculty of Medicine, Department of Anaesthesia and Reanimation. COVID-19 and non-COVID-19 ICU patients who were ≥18 years and expected to stay in the ICU for at least 7 days were included in the study. Samples were taken at certain time intervals from different body parts of the patients [mouth, skin (axilla), rectal and urine] (Table 1) and evaluated in Istanbul University, Istanbul Faculty of Medicine, Department of Medical Microbiology, Mycology Laboratory. All specimens were inoculated on CHROMagar *Candida* media (CHROMagar *Candida*, France) to detect mixed growth and CHROMagar *Candida* Plus media (CHROMagar *Candida* Plus, France) to avoid missing *Candida auris*.

Cultures were incubated at 35-37°C for 48 hours and phenotypically different colonies on primary media were subcultured on corn meal-10% agar for determining their morphology. All strains were identified to the species level using MALDI-TOF MS (Version 4.1.80; Biotyper Bruker) in Yeditepe University, Faculty of Engineering, Genetics and Bioengineering Department. Patient groups were compared statistically in terms of isolated *Candida* species and distribution according to regions.

**RESULTS**

The study consisted of 122 ICU patients including 62 COVID-19 (25 female; 37 male; mean age: 63.29) and 60 non-COVID-19 (24 female ; 36 male; mean age: 63.9). A total of 1464 samples (756 COVID-19 and 708 non-COVID-19 patients) were taken (Table 1) and fungi grew in 340 (23.2%). Mixed growth was observed in 108 cultures; was more frequently in COVID-19 patients (p<0.05) and significantly higher in oral specimens (p<0.05).

Out of a total of 471 strains which were obtained from fungal cultures, *Candida albicans* (42.71%) and *Candida glabrata* (24.2%) were most frequently isolated. *Candida auris* was not observed in this period (Table 2).

Patients with COVID-19 were found more frequently colonized in oral (p<0.001), rectal (p<0.05) regions and urine (p<0.001) compared to non-COVID-19 patients. There was no growth in the axilla region in any of the patients. Non-albicans *Candida* strains were found significantly more frequent in patients with COVID-19 in oral (p<0.001) and rectal regions (p<0.05).

**CONCLUSION**

In this study we found significantly higher oral, rectal and urine *Candida* colonization rates in COVID-19 ICU patients compared to non-COVID-19 individuals. Increased oral *Candida* colonization can be the result of insufficient oral care application to these patients in the ICUs due to infection control anxiety, and also mechanic ventilation. Because non-albicans *Candida* strains were found significantly more frequent in COVID-19 patients, intrinsically resistant isolates should be kept in mind before administering antifungals.

The high mixed growth rate detected in all individuals and especially in COVID-19 patients will affect the antifungal therapy and therefore emphasized the importance of using chromogenic media for routine evaluation. In addition, a new medium, Chromagar *Candida* Plus, will help in rapid identification in hospitals where infections due to *C. auris* are seen.