

TITLE: *Enterococcus faecalis* AND *E. faecium* ISOLATED FROM CLINICAL SAMPLES OF INFECTION IN A UNIVERSITY HOSPITAL DURING A PERIOD PRE AND DURING THE SARS-COV-2 PANDEMIC.

AUTHORS: LAHUD, Y. V.; BRESSAN, E. O.; GUEDES, D. F.; LOPES, P. F.; VELARDE, L. G. C.; CHAMON, R. C. and RIBEIRO, R. L.

INSTITUTION: UNIVERSIDADE FEDERAL FLUMINENSE - HUAP, NITERÓI, RJ (RUA MARQUÊS DE PARANÁ, 303, 4º ANDAR, CEP 24033-900, NITERÓI - RJ, BRAZIL)

ABSTRACT:

Enterococcus spp. is a gram-positive bacterium that is among the main agents of Healthcare-Associated Infections (HAIs), especially the species *E. faecalis* and *E. faecium*. In the years 2020 and 2021, we were affected by a pandemic caused by the SARS-CoV-2 virus, which directly influenced hospital care protocols. The aim of this study was to evaluate the prevalence of clinical samples of infections caused by both species in patients treated and/or hospitalized at a University Hospital located in the state of Rio de Janeiro, in the pre (2014 to 2019) and during (2020 to 2021) the pandemic. This is an observational, retrospective study of positive culture results by both species from January 2014 to December 2021. Antimicrobial profiles and species occurrence by year, site of infection, and hospital distribution were analyzed, in addition to the statistical test of the hypothesis, being considered significant $p < 0.05$. A total of 350 strains were analyzed from 2014 to 2019 and 137 in the years 2020 and 2021. In the pre-pandemic years, 86.3% of the strains were identified as *E. faecalis*, while 13.7% as *E. faecium*. In 2020 and 2021, 79.6% and 20.4% were detected as *E. faecalis* and *E. faecium*, with a significant increase in the isolation of *E. faecium* between the analyzed periods ($p=0.03$). In total, 487 strains were analyzed, representing 3.6% of all positive cultures in 2014, 5.1% in 2016, 3.4% in 2018, 3.7% in 2020 and 2.6% in 2021. In the first epidemic year in Brazil, there was a 15% decrease in enterococcal infections, followed by 2% in 2021. However, an increase of 168% ($p=0.02$) in vancomycin resistance and 41.48% ($p=0.28$) in ampicillin resistance was recorded. The most affected by these infections in the pre-pandemic period and during the pandemic were the Emergency Department, 23.4% and 30.7%, followed by the Outpatient Clinic, 23.1%, and 11.7%, Coronary Care Unit, 5.4%, and 7.3% and Intensive Care Center, 3.7% and 12.4%, respectively. Regarding the site of infection, urine samples represented 59.1% and 61.3%, blood culture samples 32% and 29.3% and secretion samples 8.9% and 8.8% in pre and during the pandemic, respectively. Thus, the results obtained in this study help us to understand the epidemiological dynamics of infections that occur in this hospital during the pandemic, justifying the constant surveillance of multidrug-resistant microorganisms in our institution.

Keywords: *Enterococcus faecium*, *Enterococcus faecalis*, enterococcal infection, antimicrobial resistance, SARS-CoV-2.