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Introduction:

Vancomycin-resistant *Enterococcus faecium* (VREF) is one of important etiologies of nosocomial infections in critically ill patients. VREF bacteremia was associated with a poorer outcome, given that overall mortality rates may reach values higher than 60% with an attributable mortality of around 40%. Few data are available concerning factors associated with mortality in the context of VREF bacteremia in different centers. The aim of our study was to determine incidence and risk factors associated with VREF bacteremia in an intensive care unit

Methods:

A retrospective case-control study was performed in the ICU from January 2014 to december 2020. Cases were defined as septic patients with VREF isolated from a blood culture. VREF was defined as an *Enterococcus faecium* isolate with an MIC of vancomycin ≥ 32 ?g/mL by the E-test according to the standards of the Clinical and Laboratory Standards Institute (CLSI). Control patients were randomly drawn from 50 hospitalized patients with vancomycin- susceptible *Enterococcus faecium* isolated from a blood culture

Results:

Seventeen case patients and 50 control patients with at least one positive *E. faecium* blood culture were identified. The demographic and clinical characteristics of the case and control groups were similar, except for mean duration of length of stay (68±9 vs 22±8, $p < 0.0001$). Mortality did not differ significantly between those with VREF (25%) and those with VSEF (14%) isolates ($p = ns$). In the univariate analysis, the significant risk factors for VREF bloodstream infections included diabetes mellitus ($p = 0.04$), end-stage renal disease ($p = 0.03$), prior exposure to corticosteroids ($p = 0.02$), prior receipt of vancomycin ($p = 0.04$) and a prolonged length of stay in ICU ($p < 0.01$) (Table 1).

Conclusion:

Conclusions:

VREF bacteremia in critically ill patients was associated with a poorer outcome. Several risk factors have been identified and they should be considered in infection control practice to prevent VREF infection or colonization and to reduce they duration

Table:

	VREF Case group, (n=17)	VSEF Control group (n=50)	P value
Length of stay in ICU (mean ± SD, days)	68 ± 9	22 ± 8	<0.01
Prior receipt of Vancomycin	14	5	0.04
Diabetes mellitus	10	1	0.04
End-stage renal disease	7	0	0.03
Prior exposure to Corticosteroids	10	6	0.02

Table 1 Risk factors for Vancomycin-resistant *Enterococcus faecium* bacteremia