

CARBAPENEM-RESISTANT ENTEROBACTERIACEAE: EPIDEMIOLOGY OF INFECTION AND COLONIZATION AT A BRAZILIAN UNIVERSITY HOSPITAL

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INTRODUCTION

Enterobacteriaceae are microorganisms (MO) of importance in multiple systems and cause the 10th development of resistance to many drugs, especially in a hospital environment. In 2002, Hoop et al. first described an endemic cluster of colonizing enterobacteria in intensive pharmacotherapy and in 2003 there was the first report of a similar episode in Brazil. We report and study the extent of the dispersion and severity of the distribution of carbapenem-resistant enterobacteriaceae (CRE) in a public hospital in the foundation for epidemiological studies to help understanding the multiple phenomenon of the great of antibiotic resistance microorganisms.

Table 1: Semianual frequency of CRE

	January		February		March		April		May		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	
UTI	10 (10)	10.0	10 (10)	10.0	10 (10)	10.0	10 (10)	10.0	10 (10)	10.0	40 (40)
ICU	10 (10)	10.0	10 (10)	10.0	10 (10)	10.0	10 (10)	10.0	10 (10)	10.0	40 (40)
Cardiovascular	10 (10)	10.0	10 (10)	10.0	10 (10)	10.0	10 (10)	10.0	10 (10)	10.0	40 (40)
Neurology	10 (10)	10.0	10 (10)	10.0	10 (10)	10.0	10 (10)	10.0	10 (10)	10.0	40 (40)
Others	10 (10)	10.0	10 (10)	10.0	10 (10)	10.0	10 (10)	10.0	10 (10)	10.0	40 (40)
Total	50 (50)	50.0	50 (50)	50.0	50 (50)	50.0	50 (50)	50.0	50 (50)	50.0	200 (200)

RESULTS

Regarding the endemic profile of CRE isolated in a Brazilian university hospital from February 2009 to December 2010, there is correlation with public records.

Table 2: Mortality rates per patient group per hospital unit

	Group	No.	Mortality rate (%)	p
Ward	Infected	10 (10%)	10.0 (10%)	<0.001
	Colonized	80 (80%)	10.0 (10%)	
ICU	Infected	10 (10%)	10.0 (10%)	<0.001
	Colonized	80 (80%)	10.0 (10%)	

METHODS

A retrospective study was carried out by analyzing database of Infection Control Committee (ICC), University Hospital of Curitiba. All positive CRE patients were studied from February 2009 to December 2010, as zero CRE was first detected in our hospital. The data were analyzed using SPSS 19.0 (Statsoft-SP).

RESULTS

A total of 2201 cultures out of 2207 patients were analyzed. A population analysis revealed an average age of 57.7 years old and a predominance of male (50.6%). Clinical infection related 58.26% of patients, being the urinary tract (UT) group. The average length of stay in hospital admission to the first culture with CRE growth was 12.4 days and the mean of hospital stay was 18.9 days.

The genus identified was predominantly *ESBLs*, followed by *Enterobacteriaceae* (24.2%). The overall mortality rate among colonized patients was 10.2%, and among those infected it was 10% (20+ 100 CREs, 0.20+0.10%), with a significant difference (p<0.0001). When grouped into infected and colonized, regardless of the ward of admission, the relative risk of death of the infected cases is 1.00 (95% CI 1.24 to 1.70) (p<0.0001).

National results are shown in table and graphs above.

CONCLUSION

This is the largest cohort of Brazilian CRE presented so far, which data show a certain degree of endemicity associated with high mortality rates and increased infection on the way of long-term resistant to enterobacteriaceae.

REFERENCES

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Graph 1: Semianual density of incidence and mortality in hospitalized patients in wards



Graph 2: Semianual density of incidence and mortality in hospitalized patients in ICU

