Epidemiological Characteristics, Resistance Patterns and Spread of Gram-Negative Bacteria Related to Colonization of Patients in Intensive Care Units

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Background

Identification and characterization of multidrug resistant Gram negative bacteria related to patients colonization may improve the management of sources and spreading, enabling infection control measures in settings with important prevalence of these microorganisms.

Objective

To determine the epidemiological characteristics, the resistance patterns and spread of multidrug resistant Gram negative bacteria related to colonization of patients in adults Intensive Care Unit (ICU) from Brazil.

Materials & Methods

- ✓ Prospective cohort study - two adults Intensive Care Units in two hospitals in Belo Horizonte, Brazil.
- ✓ Colonized patients were followed with nasal, groin and perineum swabs during their length of stay in the ICU or wards.
- ✓ Bacterial isolates were Identified by Vitek (BioMérieux). Antibiogram (Bauer-Kirby method), Carba NP test, Polymerase Chain Reaction (PCR) and sequencing were performed. Patterns of resistant microorganisms were compared by rep-PCR (Diversilab).

Results

A total of 53 patients were followed, 114 samples were related to Gram negative bacilli with resistance profile (resistance to third generation cephalosporin and carbapenem).

Table 1 – Patients colonization with multidrug resistant Gram negative bacteria - Belo Horizonte, 2014.

Bacteria specie	Patients colonization %	Patterns
Acinetobacter baumannii	51.0% (27/53)	OXA-23, OXA-253 (OXA-143 variant).
Klebsiella pneumoniae	5.6% (3/53)	ESBL (CTX-M, SHV e TEM), KPC2

Cross transmission was registered in ICU II with a similarity higher than 90.0%, between profiles (KPC2) isolated from different patients.

Conclusions

It was possible to verify different patterns of multidrug resistant Gram negative bacteria and its spread throughout two ICUs in Belo Horizonte, Brazil.

References

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