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Prevalence of colistin-resistant *Acinetobacter spp*. isolates in Centro Hospitalar Entre Douro e Vouga, Santa Maria da Feira, Portugal

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Background

Acinetobacter baumanii (Ab) is an opportunistic human pathogen associated with an increasing incidence of nosocomial infections and outbreaks worldwide. The majority of Ab isolates have a multidrug resistant (MDR) phenotype, including resistance to carbapenems and colistin, and therefore therapeutic options are limited. Mobile genetic elements have contributed to quick dissemination of antibiotic resistance genes by horizontal gene transfer increasing dramatically the antibiotic resistance.

Aims

Show the prevalence of MDR Ab collected over two years from inpatients from Centro Hospitalar Entre Douro e Vouga (CHEDV), Santa Maria da Feira, Portugal.

Results / Discussion

Table 1 – Distribution of Ab isolates collected from inpatients.

Bacterial Isolates = 130 MDR		
Hospital ward	**Specimens**	**Patients (Sex / Age)**
Internal Medicine (34%) Intensive care unit (22%)	Urine (45%) Sputum (13%)	Males (60%) 61-90 (74%)

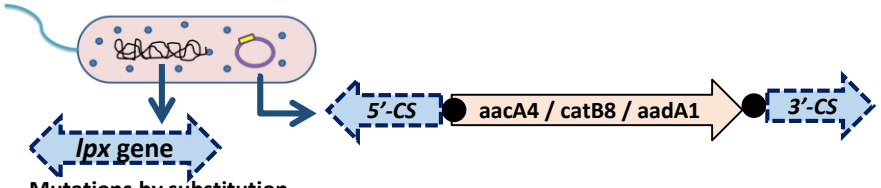

Fig.2 Schematic representation of mutations present in colistin resistance genes; class 1 integrons found.

- Phylogenetic analysis revealed the presence of 43 clonal groups some of these prevail during the period of sampling.
- 19% of the Ab isolates were resistant to colistin
- Class 1 integrons were detected in 70% of the isolates. ISCR1 element and class 2 integron were not found.

Conclusion

- ✓ A clonal prevalence is observed over period of 2 years, suggesting dissemination within the hospital;
- ✓ Ab isolates can be in the origin of nosocomial infections and outbreaks.
- ✓ Emergence of carbapenems and colistin resistance among Ab isolates from a CHEDV is a concern, because these are last resource antibiotic.

Acknowledgements

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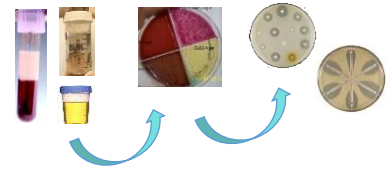
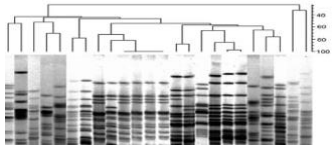
Methods

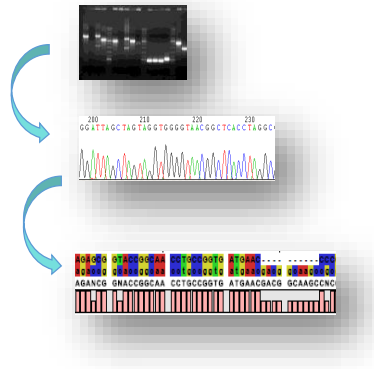
Ab isolates were isolated from different biological samples from inpatients over a period of two years.



Identification and antibiotic resistant profile was determined with Microscan WalkAway System (Siemens).

Clonal relationship was evaluated by rep-PCR, and analysed with GelCompar II 5.0 (Applied Maths, Kortrijk, Belgium).





Screening of integrons and ISCR1 element was performed by PCR.
Molecular characterization of carbapenemases and cephalosporinases were performed by multiplex PCR.
Genes involved in colistin resistance were amplified and their nucleotide sequences analyzed for the presence of mutations.