

P0497

Paper Poster Session

Gram-positive and Gram-negative bacteremia

Characterization and Clinical Impact of Bacteraemia Caused by ESBL-Producing *E. coli* in a Third Level Hospital in Ecuador

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Background: The impact of extended-spectrum β -lactamase (ESBL)-producing *Escherichia coli* (ESBL- EC) bacteraemia on outcome remains controversial. The prevalence of ESBL-EC increased from 2% in 1999 to 25% in 2014 in an Ecuadorian third level hospital in Quito Ecuador. The aim of the current study was to assess the prevalence and risk factors for ESBL-EC bacteraemia and to analyze their impact on length of hospital stay and on day 7,14,30 mortality in hospitalized patients.

Material/methods: A prospective analysis of the prevalence, risk factors, clinical features, and outcomes of all ESBL-EC bacteraemia in Vozandes Hospital. Data on all ESBL-EC and non-ESBL-EC bacteraemia from May 2013 to October 2014 were collected. A case-control study was undertaken: 24 cases had at least one ESBL-EC bacteraemia and 37 control a positive non-ESBL-EC bacteraemia. The following data were retrieved from the medical charts: age, gender, underlying diseases and comorbidities (HIV, hematological malignancies, solid tumour, diabetes mellitus, surgery, cardiac, hypothyroidism, and solid organ transplant), severity as assessed by the Pitt bacteraemia score, current chemotherapy, and length of hospital stay, and day 7, 14, 30 mortality. Bacteraemia was classified as nosocomial, healthcare-related, or community-acquired. The source of bacteraemia was considered to be urinary, catheter, digestive, or respiratory. Identified the isolates and susceptibility to antibiotics were assessed using the VITEK2 system. Characterization of ESBL genes *bla*_{CTX-M}, *bla*_{TEM} and *bla*_{SHV} was carried out by PCR and sequencing. The genetic relationship between strains was evaluated using BOX-PCR typing.

Results: Most of the isolates produce CTX-M-15, one isolate produce CTX-M-3 and one isolate produce CTX-M-14 β -lactamase. Two clones were identified. Also several clusters harbored CTX-M-15 (Figure 1). Initial antimicrobial therapy was less frequently adequate in the ESBL-EC group. The presence of ESBL-EC bacteraemia was associated with a longer hospital stay (14 days vs. 6 days; $p = 0.013$). The community onset bacteraemia was the most prevalent in both groups (89% vs. 98%). The most important source of bacteraemia was urinary source in both groups (79% vs.65%). 7, 14, mortality were not significantly different in the two groups ($p = 0.13$).

Conclusions: Despite more inadequate initial antimicrobial therapy in patients with ESBL-EC bacteraemia in this study, there was no significant increase in mortality rate. The main source of bacteraemia was considered to be urinary. Length of hospital stay was significantly different from those of patients with non-ESBL-EC bacteraemia. The CTX-M-15 β -lactamase was the most prevalent as has been reported in other regions of Latin America; this β -lactamase was distributing in all phylogenetic groups.

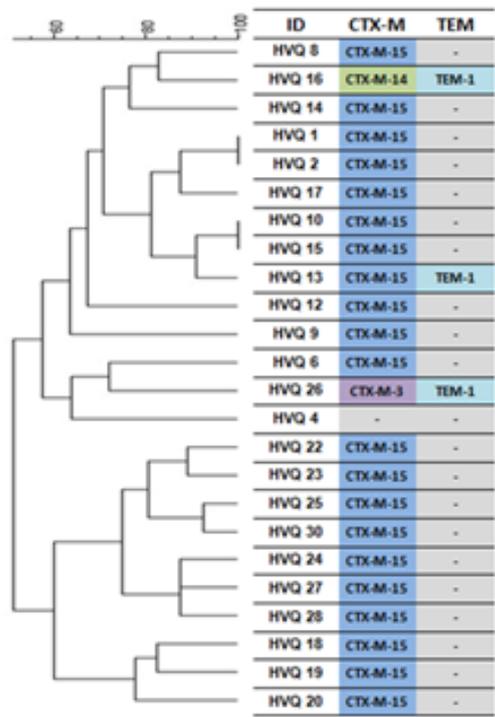


Figure 1. Genetic relationship between the isolates. UPGMA tree with DICE coefficient (position tolerance 2.00 %). The electrophoretic agarose gels were normalized in Bionumerics v. 7.0.