

# Colonization by *Klebsiella spp.* and *Escherichia coli* ESBL in neonatal intensive care units.

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## Background

Nosocomial infections caused by organisms that produce extended-spectrum beta-lactamase (ESBL) enzymes in Neonatal Intensive Care Units (NICU) are associated with significant morbidity, increased mortality and impact the healthcare system.

Low birth weight, invasive procedures, length of time spent in hospital and colonization by bacteria from such environment are predisposing factors.

The aim of this study was to analyze the frequency of isolation *Klebsiella spp* and *Escherichia coli* ESBL producers in rectal specimens from 2008-2012 in patients of the Neonatal Intensive Care Unit of the Hospital Miguel Servet in Zaragoza (Spain).

## Methods

A retrospective study was performed. ESBL-producing *Escherichia coli*, *Klebsiella pneumoniae* and *K. oxytoca* were isolated from rectal specimens obtained with swabs of newborns admitted at the NICU and were inoculated onto MacConkey agar supplemented with 1 ug/ml of cefotaxime.

Identification was performed by biochemical tests (MicroScan Walkaway-Siemens) or proteomics (EM MALDI-TOF Bruker).

The antibiotic susceptibility testing was performed by using microdilution methodology (MicroScan Walkaway-Siemens) and the ESBL-producing strains were confirmed by the disk diffusion method according to CLSI standards.

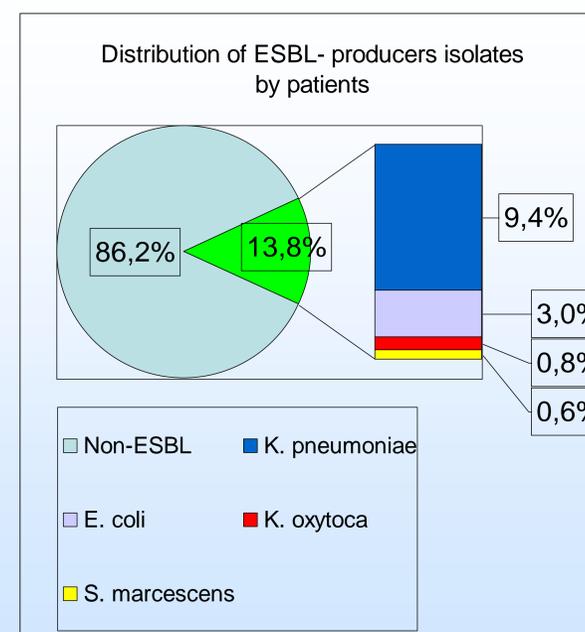
## Results

During that period 1089 samples from 499 patients were collected.

The percentage of ESBL-producers isolate recovery was 13,8% (69 patients).

The screening-positive isolates comprised:

- ✓ 47 *K. pneumoniae* (9,4%)
- ✓ 15 *E. coli* (3 %)
- ✓ 4 *K. oxytoca* (0,8%)
- ✓ 3 *S. marcescens* (0,6%)



## Conclusion

In the present study, ESBL-producing *Klebsiella pneumoniae* was the most frequent gram-negative bacilli isolated from the NICU.

This is an approach to know the rate of colonisation in these units. A weakness of the study was the impossibility of systematic screening to all patients.

The identification in these units is essential for adoption of adequate preventive measures.

## References

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