

Gram Negative Bacterial Resistance in a Private Institution of Medellin, Colombia

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Summary

Bacterial resistance is a public health problem worldwide that has increased during the last decades. Global data directly impacts patient morbidity and mortality and hospitalization conditions.

Keywords: Gram-negative bacteria; Drug resistance; Anti-bacterial agents; Epidemiology

The concept of bacterial resistance is defined as the set of genetic changes experienced by microorganisms which gives them tools to efficiently evade the antimicrobial action. Resistance mechanisms occur by multiple processes, such as mutation of chromosome material and acquisition of extra-chromosomal material. The first descriptions were found in *Staphylococcus* spp., but in the last two decades there has been an increase of Gram-negative bacteria isolates with some kind of resistance [1].

Data from the Bacterial Resistance Surveillance System from the Capital District (SIVIBAC), Colombia, shows a percentage of 13.19% of isolates of *E. coli*, 8.11% of *K. pneumoniae* and 5.2% of *P. aeruginosa* in ICUs during the year 2006 [2]. The data mentioned directly impacts patient morbi-mortality and hospitalization conditions.[3]

Fifty Eight Gram-negative isolated strains from patients in the hospitalization service from a third level complexity institution in 2012 were considered. Using a recollection instrument created by the researchers, the information was put on a database taking into account the type of bacterial isolation and type of resistance.

Nine microorganisms were isolated from the studied strains, being the most frequent *E. coli* (43.1%), *Enterobacter cloacae* (25.9%) and *Serratia marcescens* (12.4%). The most common sampling was from urine (69.0%) followed by throat swab (8.6%). Regarding the resistance profile of the isolates, AmpC resistance was present in 74% of cases. About 25% of the strains presented Extended-Spectrum Beta-lactamases (ESBL) type resistance and only 3.4% expressed carbapenemases.

The bacterial resistance profile of the isolates from the institution was similar to the reported in the literature and is consistent with the level of complexity of the institution. It is necessary to typify the mechanisms of resistance of the included isolates to make decisions regarding the hospital's epidemiological dynamics.

References

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