Plasmid-mediated AMPc producing *Proteus mirabilis* in the Health Care Area of Santiago de Compostela: molecular and epidemiological analysis by rep-PCR and MALDI-TOF

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**Introduction:** *Proteus mirabilis* is an important pathogen isolated from both community-acquired and health-care associated infections. Acquired AmpC-type beta-lactamases represent an important mechanism of resistance to extended-spectrum cephalosporins and are emerging in several European countries. The objective of this work was to know the prevalence of acquired AmpC beta-lactamase producing *P. mirabilis* over the last three years and eight months and their clonal relationships comparing MALDI-TOF and automated rep-PCR results.

**Methods:** *P. mirabilis* isolates (n= 1,396) were obtained from routine cultures at the University Hospital Complex of Santiago de Compostela from January 2006 to August 2009. Identification to the species level and antimicrobial susceptibility testing were achieved with Vitek 2. The isolates showing intermediate or total resistance to amoxicillin-clavulanic and cefoxitin, cefotaxime or ceftazidime were selected for AmpC phenotypic detection by double-disk synergy test, and molecular confirmation by multiplex PCR. Molecular typing of the isolates was performed by automated rep-PCR and MALDI-TOF.

**Results:** For the last three years and eight months, the prevalence of AmpC-producing *P. mirabilis* increased from 0.17% to 4.5%, mainly associated with urinary tract infection in elderly outpatients. In all cases, plasmidic AmpC belonging to LAT/CMY lineage were detected. A high genetic variability was seen with both, rep-PCR and MALDI-TOF MS.

**Conclusions:** AmpC-producing *P. mirabilis* is an emergent pathogen. The high genetic variability detected suggests that the spread of the resistance mechanism is more probable than a clone dispersion. Automated rep-PCR and MALDI-TOF MS show as fast and decisive methods for bacterial strain typing in clinical microbiology laboratories.