TITLE: CEFTOLOZANE-TAZOBACTAM SUSCEPTIBILITY IN *PSEUDOMONAS AERUGINOSA* STRAINS FROM A PRIVATE HOSPITAL FROM SÃO PAULO

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ABSTRACT:

Pseudomonas aeruginosa is one of the most frequent agents in nosocomial infections in Brazil. Due to the multidrug resistance profile observed in many strains, there are very few therapeutic options. Of note, carbapenem resistance is the worst problem because since they are the first therapeutic option to treat severe infections. Beta-lactam resistance in *P. aeruginosa* can be mediated by carbapenemase production, AmpC β-lactamase hiperproduction, efflux pumps, and porin lossRecently, a new antimicrobial agent, ceftolozane-tazobactam was introduced in clinical practice. Ceftolozane-Tazobactam (C/T), is less impacted by permeability alteration and efflux systems, and consequently may be active against *P. aeruginosa* strains expressing carbapenem resistance. The combination with a β-lactamase inhibitor improves its´ activity against Enterobacterales producing extended-spectrum β-lactamases. Data on ceftolozane-tazobactam susceptibility from Brazil are scarce. A retrospective analysis of laboratory database (01/2019 to 05/2019) was conducted. A single isolate per patient was included. Antimicrobial susceptibility rates were calculated for C/T and other antimicrobials active against *P.aeruginosa*. C/T susceptibility was evaluated using Liofilchem strips only if the strains was carbapenem resistant and Blue-Carba negative. For all other antimicrobials, susceptibility was evaluated by disk-diffusion. Species identification was achieved by MALDI-ToF MS (Bruker Daltonics). A total of 88 *P. aeruginosa* strains isolated from urinary tract infections or intra-abdominal (79.5%) infections and from other sites (20, 5%) were tested. The overall C/T susceptibility rate was 83%. For urinary and intra-abdominal samples the susceptibility rate was 90% but it was only 44.5% for strains cultivated from other sites. This low susceptibility rate is probably biased by the small number of strains from other sites tested. The overall sensitivity rate for ceftazidime was 45.5% while it was 33% for piperacillin-tazobactam. In conclusion, ceftolozane-tazobactam had excellent in vitro activity against carbapenem-resistant *P. aeruginosa* strains not producing carbapenemases, isolated from urinary and intra-abdominal infections.

Keywords: Cetolozane-Tazobactam *,* MDR-P, *Pseudomonas aeruginosa*

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