P1189 Susceptibility trends of ceftolozane-tazobactam and comparators when tested against European Gram-negative bacterial surveillance isolates collected from 2012-2018

Dee Shortridge*, Cecilia Carvalhaes1, Leonard Duncan1, Jennifer Streit1, Robert Flamm1

1 JMI Laboratories, North Liberty, United States

Background: Ceftolozane-tazobactam (C-T) is an antipseudomonal cephalosporin combined with a β-lactamase inhibitor. C-T has been approved in >60 countries for treatment of complicated urinary tract infections and acute pyelonephritis and for complicated intra-abdominal infections (with metronidazole) in adults. The Program to Assess Ceftolozane-Tazobactam Susceptibility (PACTS) monitors C-T resistance worldwide. In this study, we analysed resistance trends in Europe over the 7 years of PACTS for gram-negative (GN) isolates collected in 53 medical centres in 26 countries.

Materials/methods: In 2012-2018, 40,008 GN isolates, including 29,952 Enterobacteriaceae (ENT) and 7,288 Pseudomonas aeruginosa (PSA), were tested. Infection types were bloodstream (BSI), pneumonia in hospitalized patients (PIHP), skin and skin structure (SSSI), intra-abdominal, and urinary tract (UTI). Isolates were tested for susceptibility (S) by the CLSI broth microdilution method at JMI Laboratories. Antimicrobials tested were C-T, amikacin (AMK), cefepime (FEP), ceftazidime (CAZ), colistin (COL), levofloxacin (LEV), meropenem (MEM), and piperacillin-tazobactam (PIP-TAZ). Phenotypes identified were: carbapenem-resistant ENT (CRE), ENT screen-positive for extended spectrum beta-lactamase, not CRE (ESBL), multidrug resistance (MDR), MEM-nonsusceptible (NS) PSA isolates, PIP-TAZ-NS PSA isolates, and CAZ-NS PSA isolates, and MDR PSA isolates. Interpretive criteria were EUCAST (2018).

Results: The most common GN infection type was BSI (10,796) followed by PIHP (10,497), SSSI (7,936) and UTI (7,259). During the period analysed, the MDR ENT rate varied from 17.5% in 2014 to 21.0% in 2017. The PSA MDR rate varied from 24.5% in 2014 to 30.7% in 2012. The CRE and ESBL rates varied from 2.1% to 3.8% and 20.5-25.3%, respectively. The %S by year for the agents tested are shown in the table. COL and C-T were the most active against PSA. For ENT, AMK and MEM were the most active with %S >94.0%. C-T %S ranged from 87.9-89.4%. LEV was the least active for ENT and PSA.
### Conclusions

The %S varied ≤10% over the 7-year period. No trend in increasing resistance was observed for the drugs tested or the phenotypes analysed. C-T %S remained stable at >87% for ENT and PSA and was the most active β-lactam against PSA and the second most active against ENT.