Activity of Ceftriaxone and Comparator Agents Tested against Staphylococcus aureus from Patients with Bacteremia in the USA (2009-2013) - IDWeek 2014

**Background:** Ceftriaxone (CPT), the active metabolite of the produg CPT-11, is the first FDA-approved cephalosporin with potent activity against methicillin-resistant S. aureus (MRSA). CPT is approved for the treatment of community-acquired pneumonia and acute bacterial skin infections.

**Methods:** In vitro susceptibility testing was performed using a minimum inhibitory concentration (MIC) technique. Ceftriaxone (CPT; MIC50/90, 0.25/0.5 µg/mL) and vancomycin (VAN; MIC50/90, 1/1 µg/mL) were active against Staphylococcus aureus (S. aureus) strains from bacteremia in the USA, 2009-2013. Isolates were tested in cation-adjusted Mueller-Hinton broth. Concurrent testing of quality control strains was performed in the laboratory (JMI Laboratories, North Liberty, Iowa, USA) for assured proper test conditions. All tests were performed using broth microdilution (EUCAST aEUROE 2014) with 100 µL of bacteria inoculum (105 CFU/mL) in 50 µL of Mueller-Hinton broth. The MICs were determined after 18-24 hours of incubation. The ceftriaxone results were determined based on the CLSI (2012) breakpoints. The MIC values were interpreted as susceptible (≤MIC50), intermediate (MIC50 ≤MIC ≤MIC90), resistant (MIC90 >MIC). Table 2 summarizes the activity of ceftaroline and comparator agents against 4,426 S. aureus isolates from bacteremia in the USA, 2009-2013.

**Results:** Overall, 45.5% of isolates were resistant to oxacillin (MRSA). Ceftaroline was active against 95.5% of S. aureus isolates. The susceptibilities of S. aureus isolates from bacteremia (USA, 2009-2013) to ceftaroline and comparator agents are shown in Table 2.

**Conclusions:** Our results demonstrate the potent in vitro activity of ceftaroline when tested against a large collection of contemporary (2009-2013) S. aureus isolates causing bacteremia in the USA. These in vivo data support the further clinical development of ceftriaxone for bacteremia caused by S. aureus, including MRSA.

**Acknowledgments:** This study was supported by Pfizer Laboratories, LLC. Pfizer Laboratories, LLC, was involved in the design, conduct, and analysis of the study, and in the preparation of the manuscript. Pfizer was involved in the field of work. Pfizer Laboratories, LLC, had full access to all of the data in the study and made the decision to submit for publication.

**References:**

1. Clinical and Laboratory Standards Institute (2012). \(\text{CLSI}\) Document M100-S22: \(\text{CLSI}\) standards for performing and interpreting \(\text{CLSI}\) broth microdilution \(\text{CLSI}\) tests for determining \(\text{CLSI}\) antimicrobial susceptibility test \(\text{CLSI}\) of pathogens that cause respiratory \(\text{CLSI}\) infections. Wayne, PA: \(\text{CLSI}\).


