Background: Oritavancin was approved in the USA for treatment of complicated skin and skin structure infections (CASSIS) caused by susceptible S. aureus, and community-onset infections (COCs) have been established as an important pathogen outside of healthcare settings. Although a downward trend has been observed in the incidence of CASSIS infections in the USA, COCs, community-onset infections have remained stable since 2005. In several USA states community-associated (CA) S. aureus (MRSA) isolates account for the majority of community-onset skin and skin structure infections (SSSIs) diagnosed in emergency room visits.

Methods: A total of 1,110 S. aureus isolates were recovered from blood during the oritavancin surveillance program for USA (2013–2014). Of these, 790 and 218 were defined as non-CASSIS (CA) and COCs, respectively, in CDC definitions; 102 isolates were of unknown origin. Isolates were collected from 28 sites in the nine USA Census regions and were identified by standard algorithms and MALDI-TOF. Susceptibility testing was performed by CLSI methods (M07-A10), interpretation of MIC results used JMI (clinical and CLSI [2015] criteria). MRSA resistant to three or more drug classes were defined as multidrug-resistant (MDR).

Results: Oritavancin (100% susceptible) had MICs of ≤0.5, ≤0.25 and ≤0.12 µg/mL against S. aureus, resistant regardless of susceptible phenotype or origin. Other agents, such as vancomycin, daptomycin and linezolid were active against all subsites. Oritavancin MIC results were eight-fold lower than daptomycin and 16- to 32-fold lower than vancomycin in vitro. All 1,110 S. aureus isolates were applied for testing against oritavancin and comparator agents to determine the origin of an isolate: any S. aureus isolate recovered from an inpatient or from a healthcare-associated infection was defined as HA, and any isolate recovered later than 48 hours after hospitalization was considered HA. Among the 1,110 S. aureus isolates, 700 and 218 were defined as CA and HA, respectively; 102 isolates were of unknown origin and were not included in the analysis. Isolates were divided into the three subsets COC, CA-MRSA and HA-MRSA.

Antimicrobial susceptibility test methods. Susceptibility of isolates to oritavancin and comparator agents was determined by both broth microdilution, following the Clinical and Laboratory Standards Institute (CLSI) M07-A10 document and/or broth microdilution, or agar diffusion supplemented with 0.002% polysorbate 80. Bacterial inoculums were prepared to approximate colony counts to ensure an adequate number of cells for each testing event. Validation of the MIC values was performed by concurrent testing of CLSI-recommended quality control (QC) reference strains (S. aureus ATCC 29213). QC results were within published acceptable ranges (M100-S25). MIC interpretive criteria were defined by CLSI for S. aureus (≤0.12 µg/mL). Interpretive criteria from CLSI were applied for comparator agents, as available. Any isolate resistant in three or more drug classes in addition to β-lactam agents were defined as multidrug-resistant (MDR).

Conclusions: Oritavancin had potent in vitro activity against this community and hospital-associated cohort of S. aureus causing invasive infections in USA hospital and emergency settings. Oritavancin consistently greater than that of comparator agents.

ORITAVANCIN IN VITRO ACTIVITY AGAINST STAPHYLOCOCCUS AUREUS RESPONSIBLE FOR INVASIVE COMMUNITY- AND HOSPITAL-ASSOCIATED INFECTIONS AMONG PATIENTS IN THE USA (2013-2014)

Background: Methicillin-resistant Staphylococcus aureus (MRSA) has become the most prevalent pathogen in healthcare settings in the USA for over a decade. MRSA has also been identified as an important pathogen outside of healthcare settings. Although a downward trend has been observed in the incidence of MRSA infections in the USA, COCs, community-onset infections have remained stable since 2005. In several USA states community-associated (CA) S. aureus (MRSA) isolates account for the majority of community-onset skin and skin structure infections (SSSIs) diagnosed in emergency room visits.

Methods: Oritavancin is a semisynthetic bacterial lipidoglycopeptide approved by the USA Food and Drug Administration (USA, August 2014) and European Medicines Agency (EMA, March 2015) for the first time only treatment of adults with acute bacterial skin and skin structure infection (ABSSSI), community-onset (CA) and hospital-onset (HA) infections. Oritavancin is a Gram-positive organism such as staphylococci, enterococci and streptococci, including the antibiotic-resistant strains (i.e. ≤0.12 µg/mL) against S. aureus, regardless of origin or susceptible phenotype and/or activity.

Table 2. Antimicrobial activity of oritavancin and comparator agents against MRSA isolates showing MDR and non-MDR phenotypes responsible for invasive community- and hospital-associated infections among patients in the USA (2013-2014).

Table 3. Antimicrobial activity of oritavancin and comparator agents against MSSA and MDR resistant isolates responsible for invasive community- and hospital-associated infections among patients in the USA (2013-2014).