In Vitro Evaluation of PTK796 Activity Tested against Staphylococcus aureus, Including Hospital- and Community-Associated MRSA Strains from the USA and Europe

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ABSTRACT

MATERIALS AND METHODS

RESULTS

CONCLUSIONS

Resistance to currently available antimicrobial classes has increased markedly during the past several years, and the clinical use against numerous Gram-positive and -negative bacterial pathogens. Staphylococcus aureus is the most common Gram-positive species associated with human infections, including serious and invasive diseases. Strains of methicillin-resistant S. aureus (MRSA) are commonly resistant to other antimicrobials and this often causes difficult decisions for clinical practitioners when using empiric treatment.

Healthcare-associated (HA-MRSA) infections have long been known as a serious problem among very old patients and have been very problematic during treatment. Some therapeutic options have been made available for patients with MRSA (S. aureus) that are susceptible to oxacillin, methicillin, or cefoxitin, and a few are now resistant to vancomycin. The development of resistant strains of S. aureus (methicillin-resistant S. aureus (MRSA)) has become one of the forefront of clinical consideration and has also become a serious healthcare concern, due to the development of community-associated strains and it is recognized as the most problematic pathogen that is associated with complicated skin and skin-structure infections (cSSSI). PTK796, an investigational agent, was developed by Pharmacia and has been evaluated in phase-2 and -3 trials which have demonstrated its anti-MRSA activity and potential for clinical use against serious infections. This study was performed to evaluate the in vitro antimicrobial activity of PTK796, a novel leucacycline-class (aminocyclitol) compound, against methicillin-susceptible S. aureus (MSSA) and MRSA from medical centers located in Europe and the United States (USA). A total of 325 non-duplicate isolates of S. aureus were collected from bloodstream, skin and skin structures, and respiratory tract isolates that were resistant to commercially available antibiotics, including azithromycin (MIC >32 μg/ml), tetracycline (MIC >32 μg/ml), levofloxacin (MIC >32 μg/ml), doxycycline (MIC >32 μg/ml), and vancomycin (MIC >2 μg/ml). A total of 325 non-duplicate isolates of S. aureus were collected from bloodstream, skin and skin structures, and respiratory tract isolates that were resistant to commercially available antibiotics, including azithromycin (MIC >32 μg/ml), tetracycline (MIC >32 μg/ml), levofloxacin (MIC >32 μg/ml), doxycycline (MIC >32 μg/ml), and vancomycin (MIC >2 μg/ml). 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