Activity of BC-3781, a Novel Pleuromutilin Compound, Tested against Clinical Isolates of MRSA, Including Molecularly Characterized Community-Acquired and Hospital-Associated Strains

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ABSTRACT

It is well known that methicillin-resistant Staphylococcus aureus (MRSA) can be refractory to many antimicrobial agents that are currently used in clinical practice. This compromises difficult empiric treatment decisions for infections caused by this commonly isolated pathogenic MRSA infections that do not respond well to the prescribed antimicrobial agents, which is not uncommon, can quickly become serious and may lead to hospitalization. Community-associated MRSA (CA-MRSA) and healthcare-associated MRSA (HA-MRSA) have distinct susceptibility patterns. However, it is becoming more difficult to distinguish between CA-MRSA and HA-MRSA due to the evolution of resistant clones that can be isolated within both of these environmental settings. CA-MRSA is considered to be a serious pathogen among very ill patients that is associated with numerous types of infections, and can be difficult to treat. CA-MRSA commonly causes wound infections, and it is recognized as the most problematic pathogen causing complicated skin and skin structure infections (cSSSI). Resistance to currently available antimicrobial classes continues to increase, and safe and effective novel treatment options are urgently needed for clinical use against this important bacterial pathogen.

INTRODUCTION

BC-3781 is a pleuromutilin antimicrobial agent intended for systemic use that is currently in clinical phase III and is being targeted for treating cSSSI as well as bacterial pneumonia like other pleuromutilins, interferes with bacterial protein synthesis by binding the peptidyl transferase center of the 50S ribosomal subunit. BC-3781, like other pleuromutilins, inhibits protein synthesis without cross-resistance (R) to other antimicrobial classes. Pleuromutilins inhibit protein synthesis by binding the peptidyl transferase component of the 50S subunit of ribosomes. We tested the activity of BC-3781 against a diverse collection of S. aureus. BC-3781 activity against MRSA was similar to that for MSSA.

MATERIALS & METHODS

BC-3781 was eight-fold more active than vancomycin and 16-fold more active than linezolid against the CA-MRSA isolates (Table 3).

Table 2. Antimicrobial activity of BC-3781 compared to those of comparator agents (MIC range 0.03–4.0 µg/mL).

Table 3. Activity of BC-3781 compared to those of comparator antimicrobial agents against a subset of 712 S. aureus isolates.

CONCLUSIONS

BC-3781 was eight-fold more active than vancomycin and 16-fold more active than linezolid against the CA-MRSA isolates (Table 3).

Table 3. Activity of BC-3781 compared to those of comparator antimicrobial agents against a subset of 712 S. aureus isolates.

SELECTED REFERENCES


