Activity of JNJ-Q2, a New Fluoroquinolone, Tested Against Contemporary Pathogens Relevant to Acute Bacterial Skin and Skin-Structure Infection (ABSSSI)

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INTRODUCTION

Acute bacterial skin and skin-structure infections (ABSSSI) are one of the most commonly encountered infections in humans and Staphylococcus aureus is the most common etiological pathogen. Multiple factors, including the development of antibiotic resistance in S. aureus, have resulted in the clinical need for new agents that provide improved efficacy over current agents. JNJ-Q2 is a novel fluorinated quinolone with potent activity against Gram-positive and -negative pathogens. JNJ-Q2 is in clinical development for the treatment of ABSSSI.

METHODS

This study included 3,650 contemporary (2010) pathogens relevant to ABSSSI (96 centers in 26 countries). S. aureus (SA), 45.6% methicillin-resistant (methicillin-resistant [MRSA] and methicillin-susceptible [MSSA], 54.4% methicillin-susceptible [MSSA], 54.4% beta-haemolytic streptococci [BHS], including 278 S. pyogenes) were susceptibility tested. All isolates were tested by validated broth microdilution assays using the US Clinical and Laboratory Standards Institute (CLSI) and EUCAST breakpoints.

RESULTS

JNJ-Q2 demonstrated good activity overall (MIC90, 0.015/0.03 µg/ml) against 3,561 SA isolates inhibited at a MIC of 0.5 µg/ml. JNJ-Q2 was 16-fold more potent than levofloxacin (MIC90, 8 µg/ml) and at least 16-fold more potent than clindamycin and levofloxacin (both MIC90, 4 µg/ml). The aims of this study were to determine comparative in vitro activity of JNJ-Q2 tested against clinical isolates representing the geographic diversity of ABSSSI and to monitor the activity of JNJ-Q2 compared to other broad-spectrum antimicrobial agents tested against contemporary clinical isolates in North American, European, Asia-Pacific (includes the Republic of China), and Latin American medical centers for the year 2010.

MATERIALS AND METHODS

Susceptibility testing. For JNJ-Q2 and moxifloxacin, CLSI reference frozen-broth microdilution method (CLSI, 2010) was used. For all other comparator agents, susceptibility testing was performed by CLSI (CLSI, 2011) and EUCAST (2011). EUCAST breakpoints were used to determine susceptibility testing results (CLSI, 2011). QC was tested daily with S. aureus ATCC 29213 and Enterococcus ATCC 29212 and all values were within specified limits.

In this 2010 surveillance study of contemporary and geographically diverse isolates, JNJ-Q2 showed greater activity overall (MIC90, 0.015/0.03 µg/ml) compared to levofloxacin (MIC90, >4 µg/ml; both SA and MSSA) and JNJ-Q2 still exhibited excellent activity (MIC90, ≤0.008/0.015 µg/ml) against levofloxacin-susceptible populations, JNJ-Q2 still exhibited excellent activity (MIC90, ≤0.008/0.015 µg/ml) against levofloxacin-resistant strains compared to levofloxacin-susceptible strains, however, with an MIC90 of 0.5 µg/ml.

The potency of JNJ-Q2 was observed to be in levofloxacin-resistant-methicillin-sensitive (MSSA) and levofloxacin-resistant-methicillin-resistant (MRSA) populations, however, with an MIC90 of 0.5 µg/ml (both SA and MSSA), JNJ-Q2 still showed good activity against levofloxacin-resistant-methicillin-sensitive MSSA (MIC90, 0.025–0.05 µg/ml; Table 3) and MRSA (MIC90, ≤0.008 µg/ml; Table 3).

In Table 3, the susceptibility distribution of JNJ-Q2 and other comparator therapy against 2,881 S. aureus isolates is presented. The spectrum of activity and potency of JNJ-Q2 and comparator therapy tested against 3,650 clinical isolates are presented in Tables 2 and 3.

CONCLUSIONS

In vitro activity of JNJ-Q2 tested against contemporary and geographically diverse isolates of methicillin-sensitive (MSSA) and methicillin-resistant (MRSA) S. aureus, MSSA and MRSA, and S. pyogenes were presented.

REFERENCES


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The favorable results support the further clinical development of JNJ-Q2 to treat ABSSSI including those caused by levofloxacin-resistant MRSA.

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