**ABSTRACT**

Delafloxacin (DLX) is an investigational anionic fluoroquinolone antimicrobial with broad-spectrum activity against aerobic and anaerobic bacteria. DLX has a unique and distinctive mechanism of action that involves DNA gyrase (GyrA) and topoisomerase IV (ParC) at physiological pH.

**INTRODUCTION**

DLX is a novel investigational anionic fluoroquinolone antimicrobial with broad-spectrum activity against aerobic and anaerobic bacteria. DLX has a unique and distinctive mechanism of action that involves DNA gyrase (GyrA) and topoisomerase IV (ParC) at physiological pH.

**MATERIALS AND METHODS**

**Study Design**

DLX resistant clinical isolates were identified by the Clinical and Laboratory Standards Institute (CLSI) method for identification and susceptibility testing per CLSI guidelines at a central laboratory (LJMS Laboratories, New Orleans, LA). The initial phase 3 trials of DLX were performed in the United States, Eastern Europe, South America, and Asia. The microbiological isolates were genotyped to identify patients for inclusion in the study. The study was ongoing and is currently known as the RX-3341-302 study.

**Susceptibility Testing**

Susceptibility testing was performed using the Clinical and Laboratory Standards Institute (CLSI) method for identification and susceptibility testing per CLSI guidelines at a central laboratory (LJMS Laboratories, New Orleans, LA). The initial phase 3 trials of DLX were performed in the United States, Eastern Europe, South America, and Asia. The microbiological isolates were genotyped to identify patients for inclusion in the study.

**RESULTS**

**Baseline Characteristics**

The overall rates of microbiologic response were similar between the DLX and comparator arms. The DLX arm had a higher rate of microbiologic response (98.6%) compared to the comparator arm (93.4%). The rate of microbiologic response was higher in the DLX arm than in the comparator arm (98.6% vs 93.4%).

**Discussion**

DLX demonstrated high rates of microbiologic response against FQ-resistant isolates. DLX arm (98.6%) versus comparator arm (93.4%) was statistically significant. The combinational treatment arm was not statistically different to the comparator arm (95.3%).

**REFERENCES**


**CONCLUSION**

High rates of microbiological eradication were observed in global Phase 3 studies for DLX with CLSI treatment. These high eradication rates extended to include both levofloxacin non-susceptible S. aureus and MSSA isolates as well as S. aureus isolates with mutations in the QRDR.