Introduction

A total of 13,809 consecutive, nonduplicate bacterial isolates were submitted as part of the SENTRY Program originated from Latin American medical centers (2003-2006) and were tested for susceptibility to doripenem (S-4661A) using CLSI reference methods at a central laboratory located in the USA. doripenem (S-4661A) is a new carbapenem with a broad spectrum of activity against aerobic Gram-negative and Gram-positive pathogens. doripenem (S-4661A) is currently evaluated in Phase III clinical trials as a potential therapeutic agent for the treatment of serious and life-threatening infections caused by multidrug-resistant gram-negative and gram-positive bacteria, including those involved in hospital-acquired bloodstream infections and nosocomial pneumonia. doripenem (S-4661A) is a new carbapenem with a broad spectrum of activity against aerobic Gram-negative and Gram-positive pathogens. doripenem (S-4661A) is currently evaluated in Phase III clinical trials as a potential therapeutic agent for the treatment of serious and life-threatening infections caused by multidrug-resistant gram-negative and gram-positive bacteria, including those involved in hospital-acquired bloodstream infections and nosocomial pneumonia.

Materials and Methods

Bacterial Isolates

A total of 13,809 consecutive, nonduplicate bacterial isolates were tested for susceptibility to doripenem (S-4661A). All isolates were selected at the participating medical center by the in vitro activity of the test agents, including doripenem (S-4661A), imipenem, and meropenem, against the bacterial isolates. Isolates were selected for testing on the basis of their Gram-negative and Gram-positive characteristics and were tested for susceptibility to doripenem (S-4661A), imipenem, and meropenem, using CLSI reference methods at a central laboratory located in the USA.

Antimicrobial Activity of Doripenem Against Leading Bacterial Pathogens: Results From a Latin American Surveillance Study (2003-2006)

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Background

Doripenem showed potent activity against Enterobacteriaceae (including MDR) gram-positive pathogens in North American patients. Increases in carbapenem resistance rates have been observed among pathogens such as Acinetobacter spp., Enterococcus spp., and Pseudomonas aeruginosa. Agents possessing potent antimicrobial activity against these pathogens or at least molecular structure confers resistance to inactivation by β-lactamase stability and resistance to inactivation by mutants. Resistance to inactivation by mutants is the most important mechanism of carbapenem resistance among Enterobacteriaceae. This is a potential therapeutic agent for the treatment of serious and life-threatening infections caused by multidrug-resistant gram-negative and gram-positive bacteria, including those involved in hospital-acquired bloodstream infections and nosocomial pneumonia.

Amended Abstract

Background

Doripenem (S-4661A) is a potent carbapenem antibiotic with broad antimicrobial activity against aerobic Gram-negative and Gram-positive pathogens. The activity of doripenem (S-4661A) against Enterobacteriaceae (including MDR) gram-positive pathogens in North American patients is presented in this study. Increases in carbapenem resistance rates have been observed among pathogens such as Acinetobacter spp., Enterococcus spp., and Pseudomonas aeruginosa. Agents possessing potent antimicrobial activity against these pathogens or at least molecular structure confers resistance to inactivation by β-lactamase stability and resistance to inactivation by mutants. Resistance to inactivation by mutants is the most important mechanism of carbapenem resistance among Enterobacteriaceae. This is a potential therapeutic agent for the treatment of serious and life-threatening infections caused by multidrug-resistant gram-negative and gram-positive bacteria, including those involved in hospital-acquired bloodstream infections and nosocomial pneumonia.

Materials and Methods

Bacterial Isolates

A total of 13,809 consecutive, nonduplicate bacterial isolates were tested for susceptibility to doripenem (S-4661A). All isolates were selected at the participating medical center by the in vitro activity of the test agents, including doripenem (S-4661A), imipenem, and meropenem, against the bacterial isolates. Isolates were selected for testing on the basis of their Gram-negative and Gram-positive characteristics and were tested for susceptibility to doripenem (S-4661A), imipenem, and meropenem, using CLSI reference methods at a central laboratory located in the USA.

Results

- The 13,809 isolates comprised a part of the SENTRY Program originated from Brazil (1012), Mexico (1761), and Venezuela (1291). Of the 13,809 isolates, 2874 were isolated in the United States, 1291 in Brazil, 1761 in Mexico, and 1291 in Venezuela. The isolates were identified as follows: P. aeruginosa (1012), Acinetobacter spp. (647), and Enterococcus spp. (2698).
- The 13,809 isolates examined as part of the SENTRY Program originated from Latin American medical centers (2003-2006). The SENTRY Program is a worldwide surveillance network that collects bacterial isolates from hospitals and tests them for susceptibility to a wide range of antimicrobial agents.
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Conclusions

- Doripenem showed potent activity against Enterobacteriaceae (including MDR) gram-positive pathogens and at least potentially resistant to inactivation by mutants. Resistance to inactivation by mutants is the most important mechanism of carbapenem resistance among Enterobacteriaceae. This is a potential therapeutic agent for the treatment of serious and life-threatening infections caused by multidrug-resistant gram-negative and gram-positive bacteria, including those involved in hospital-acquired bloodstream infections and nosocomial pneumonia.

Selected References