Tigecycline Activity Tested against Carbapenem-Resistant Enterobacteriaceae from European Hospitals: Results from the SENTRY Program (2010-2013)

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Objective
To evaluate in vitro activity of tigecycline and comparators agents tested against carbapenem-resistant Enterobacteriaceae (CRE) isolated from European hospitals.

Introduction
The prevalence of carbapenem-resistant Enterobacteriaceae (CRE) remained extremely low for many years after the approval for clinical use in 1995. However, in recent years the occurrence of carbapenem-resistant Enterobacteriaceae has increased rapidly in some geographic regions. In particular, clinical isolates with carbapenem resistance with KPC (class A carbapenemases) have been identified in the United States, Israel, and some European countries.

Tigecycline is a glycylcycline with broad-spectrum antimicrobial activity that was initially approved by the European Medicines Agency in 2006 for the treatment of complicated skin and soft tissue (cSSTI) and intra-abdominal infections (cIAI).

Methods
A total of 14,286 clinically significant non-duplicate Enterobacteriaceae isolates from 18 European countries were collected from 18 European countries from January 2010 to November 2013. Susceptibilities were determined by broth microdilution method in a central monitoring laboratory (JMI Laboratories, North Liberty, Iowa) according to EUCAST breakpoints for CRE. Tigecycline has been used to monitor the in vitro activity of CRE isolated from European medical centers.

CONCLUSIONS
• CRE has emerged and may become a major problem of antimicrobial resistance in some European countries, mainly Greece, Italy, and Poland.

Tigecycline continues to demonstrate in vitro activity against Enterobacteriaceae strains isolated from European hospitals, including CRE.

• Based on the potency and spectrum, tigecycline continues to have an important role for treating infections caused by indicated CRE/susceptible organisms in Europe, including those caused by multidrug-resistant strains.

RESULTS
Overall, 1.9% (268/14,286) of Enterobacteriaceae strains were CRE. Tigecycline (98.3% susceptible [EUCAST]), imipenem (98.2% susceptible), meropenem (98.0%), colistin (98.0%), and polymyxin B (95.8%) were the most active agents tested against CRE isolates. The prevalence of carbapenem-resistant Enterobacteriaceae overall. Susceptibility rates for amikacin (≤0.5 mg/L) were the most active agents tested against CRE isolates. CRE accounted for 84.6, 81.0 and 68.8% of carbapenemases identified in France, Italy and Poland, respectively.

Table 1: Frequency of occurrence of carbapenem-resistant Enterobacteriaceae (CRE) (2010-2013)

Table 2: Activity of tigecycline and comparator antimicrobial agents against CRE (2010-2013)

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