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In vitro activity of tigecycline and comparators against cephalosporin-resistant isolates of Escherichia coli and Klebsiella pneumoniae from Europe: TEST 2014-2016

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Background: Test monitors the *in vitro* activity of the glycylcycline tigecycline and comparator antimicrobial agents against clinical isolates collected in Europe from a variety of infectious processes. This study reports the *in vitro* activity of tigecycline against *K. pneumoniae* and *E.coli* including cephalosporin resistant isolates.

Material/methods: Non-duplicate clinical isolates were collected from defined infection sites from 28 European countries. Isolates were identified to the species level at each site. Susceptibility testing was performed by CLSI broth micro-dilution by the local laboratory using supplied panels and interpreted using EUCAST breakpoints. Confirmation of extended-spectrum-β-lactamase (ESBL) activity was performed at a central laboratory.

Results: 9497 isolates of *E. coli* and *K. pneumoniae* were collected from sites in Europe. ESBL rates were 29.8% and 18.8% for *K. pneumoniae* and *E. coli* respectively. Cephalosporin resistance (resistant to all cephems) rates were 34.9% and 16.4% for *K. pneumoniae* and *E. coli* respectively. Susceptibility of All, cephalosporin resistant and ESBL producers are shown in the following table.

Organism (n) %Susc. All/%S Cephems-R

Drug	*K. pneumoniae* (4053/1413)	*K. pneumoniae* ESBL(1206/1094)	*E. coli* (5444/897)	*E. coli* ESBL(1021/783)
TGC	83.9/74.6	75.3/74.6	99.4/98.6	99.1/99
AMK	91.6/78.6	91.5/91.2	97.9/92.4	93.7/92.9

FEP	61.1/0	3.4/0	77.7/0	7.8/0
CRO	60.2/0	1.5/0	76.9/0	1.0/0
LVX	68.0/25.5	33.3/30.07	64.8/14.9	18.4/15.5
MEM	89.8/71.2	87.4/86.2	99.7/98.6	99.5/99.4
TZP	71.0/37.2	48.2/45.52	89.5/74.6	79.9/77.3

AMK=Amikacin, FEP=Cefepime, CRO=Ceftriaxone, LVX=Levofloxacin, MEM=Meropenem, TZP=Piperacillin-Tazobactam, TGC=Tigecycline

Conclusions: Tigecycline had good *in vitro* activity against both *K. pneumoniae* and *E. coli* including ESBL producers or cephalosporin resistant with amikacin more active against *K. pneumoniae* ESBL producers. Overall activity of tigecycline was comparable to amikacin and meropenem against most isolates.