In vitro Activity of Tigecycline and Comparators Against *Klebsiella pneumoniae* and *K. oxytoca* Isolated from Patients in Germany; 2010-2014.

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Objectives

K. pneumoniae and *K. oxytoca* of the family *Enterobacteriaceae* play an important role in the pathogenesis of infections worldwide. Increasing antimicrobial resistance in these species dictates the continued surveillance and susceptibility testing of these pathogens isolated from patients with a wide spectrum of infectious processes. The Tigecycline Evaluation Surveillance Trial (TEST) examines the susceptibility of pathogens isolated from multiple infectious processes from patients in countries worldwide. The purpose of this report is to examine the susceptibility of *K. pneumoniae* and *K. oxytoca* isolated from patients in Germany in 2010-2014 with intra-abdominal (IAI) and skin and skin structure infections (SSTI).

Materials and Methods

352 clinically significant *K. pneumoniae* and *K. oxytoca* were obtained from hospitalized patients in 93 cumulative hospital sites in Germany from patients with IAI or SSTI infections. MICs were determined for tigecycline and relevant comparator antimicrobials against these pathogens in 2010-2014 using supplied broth microdilution panels according to CLSI guidelines. Susceptibility was interpreted according to EUCAST guidelines.

Results

The % susceptible for 352 isolates including ESBL-positive isolates for tigecycline and comparative antimicrobial agents is shown in the following table:

Organism (N)	Drug % Susceptible							
	AMK	AMC	FEP	CRO	LVX	MEM	TZP	TGC
K. pneumoniae (213)	95.7	72.7	75.4	76.5	75.4	96.8	79.1	85.0
ESBL-positive (44)	89.7	20.5	7.7	2.6	25.6	92.3	38.5	71.8
ESBL-negative (169)	97.3	86.5	93.2	96.0	88.5	98.0	89.9	88.5
K. oxytoca (139)	100	76.4	83.7	79.7	85.4	100	80.5	96.8
ESBL-positive (1)	na	na	na	na	na	na	na	na
ESBL-negative (138)	100	77.1	84.4	80.3	86.1	100	80.3	96.7

AMK=Amikacin, AMC=Amoxicillin-Clavulanate, FEP=Cefepime, CRO=Ceftriaxone, MEM=Meropenem LVX=Levofloxacin, TZP=Piperacillin-Tazobactam, TGC=Tigecycline na=not applicable

MIC frequency distribution of tigecyline vs. *K. pneumoniae* (all, ESBL negative, ESBL positive) and *K. oxytoca* is shown in the following table:

	N over cumulative percentage							
MIC	0.06	0.12	0.25	0.5	1	2	4	8
K. pneumoniae (213)	-	6 2.8	50 26.3	99 72.8	26 85.0	22 95.3	8 99.1	2 100
K. pneumoniae ESBL- (169)	-	6 3.6	45 30.2	85 80.5	15 89.4	10 95.3	7 99.4	1 100
K. pneumoniae ESBL+ (44)	-	-	5 11.4	14 43.2	11 68.2	12 95.5	1 97.7	1 100
K. oxytoca (139)	1 0.7	15 11.5	79 68.4	22 84.7	1 95.7	5 99.3	1 100	

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Conclusions

Amongst the *Klebsiella* species examined TGC, AMK and MER remain the most active agents *in vitro*. Tigecycline percent resistant (MIC≥4mg/L) was less than 3% for all *Klebsiella* species reported. ESBL-positive *K. pneumoniae* during this period were 20.7% while ESBL-positive *K. oxytoca* were< 1%. *K. pneumoniae* remains the most common *Klebsiella* sp recovered from both IAI and SSTI in Germany 2010-2014. The continued monitoring of antimicrobial resistance in these important pathogens in Germany is warranted especially considering the increasing frequency of ESBL-positive gram-negative pathogens.

References

1. Clinical and Laboratory Standards. Performance Standards for Susceptibility Testing M100-S24. 2014
2. EUCAST breakpoint tables for interpretation of MICs and zone diameters Version 4.0 January 2014.

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