Antimicrobial Activity of Tigecycline and Other Broad-Spectrum Agents Tested Against Bloodstream Infection Isolates Collected in France, Germany, and Italy

HS Sader, MG Stilwell, TR Fritsche, R Mallick, A Kuznik, P Bradford, RN Jones

JMI Laboratories, North Liberty, IA, USA, and Wyeth Pharmaceuticals, Collegeville, PA, USA.

Background: We assessed the activity of tigecycline (formerly GAR-936), a novel glycylcycline, against recent bloodstream infection (BSI) pathogen isolates from 3 European countries as an indication of potential coverage of serious infections.
Methods: Bacterial isolates (1 per patient) were consecutively collected during the period 2000—2005 from documented BSI in 16 medical centers located in France (6), Germany (7), and Italy (3). Frequency of occurrence of BSI pathogens was determined and their antibiograms assessed using reference broth microdilution methods according to the CLSI. A tigecycline-susceptible (S) breakpoint was defined as ≤2 mg/L for Gram-negative bacilli; ≤0.5 mg/L for staphylococci, and ≤0.25 mg/L for streptococci and enterococci following interpretive criteria established by the US-FDA.
Results: A total of 13,432 strains were tested, 6301, 3705, and 3046 from France, Germany, and Italy, respectively. The frequency of pathogen occurrence and susceptibility rates to tigecycline are summarized in the table.

Rank	Pathogen rank by country (% S to tigecycline)		
Order	France	Germany	Italy
1	*E. coli* (99.8)	*S. aureus* (100.0)	*E. coli* (100.0)
2	*S. aureus* (99.6)	*E. coli* (100.0)	*S. aureus* (100.0)
3	Coag.-neg. staphylococci (CoNS; 99.3)	CoNS (98.4)	CoNS (100.0)
4	*P. aeruginosa* (4.8)	Enterococci (95.6)	*P. aeruginosa* (9.4)
5	*Klebsiella* spp. (96.5)	*Klebsiella* spp. (100.0)	Enterococci (94.9)
6	*Enterobacter* spp. (97.3)	*P. aeruginosa* (9.0)	*Klebsiella* spp. (100.0)
7	Enterococci (94.4)	*Enterobacter* spp. (100.0)	*Enterobacter* spp. (95.7)
8	*S. pneumoniae* (100.0)	*P. mirabilis* (68.0)	*Acinetobacter* spp. (91.3)

Tigecycline was highly active against the main pathogens isolated from BSI, except for *P. aeruginosa* and some *P. mirabilis*. Tigecycline was consistently active against the 3 ranking pathogens, including *E. coli* (99.8-100.0% S), *S. aureus* (99.6-100.0% S) and CoNS (98.4-100.0% S), representing 58% of all strains evaluated. The main resistance phenotypes detected were methicillin-resistant *S. aureus* (14.8-38.2% of isolates) and CoNS (71.5-81.5%), ciprofloxacin-resistant *E. coli* (7.0-21.0%), extend-spectrum beta-lactamase (ESBL)-screen-positive *Klebsiella* spp. (7.6-28.9%), imipenem-resistant *P. aeruginosa* (IRPSA; 1.3-8.9%) and vancomycin-resistant enterococci (1.0-10.3%). Tigecycline showed excellent activity against these resistant pathogens, except IRPSA.
Conclusions: Tigecycline exhibited a wide-spectrum of activity and potency versus BSI isolates collected in three European countries. Resistance to tetracycline or other antimicrobial classes did not adversely influence tigecycline activity. Treatment options for serious infections in nosocomial environments should benefit from the availability of tigecycline.

Words: 282
Topic: Antimicrobials and Antivirals: Resistance (2)