Comparative Activity of Broad-Spectrum Antimicrobial Agents Used in the Treatment of Serious Infections Caused by Non-Enteric Gram Negative Bacilli: Seventh Year Report from the MYSTIC Program (USA; 1999-2005)

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ABSTRACT
Background: The MYSTIC Program is a longitudinal surveillance network of 101 medical centers in the USA. The program monitors antimicrobial resistance among non-Enteric Gram-negative bacilli (NEG-B) isolated from infections at participating centers. Movement of antimicrobial resistance among different centers and to different organisms is monitored.

Objectives: To evaluate the susceptibility of non-Enteric Gram-negative bacilli tested against a broad-spectrum antimicrobials.

Methods: A summary of the susceptibility results was reported for selected non-Enteric Gram-negative bacilli.

RESULTS
1. Ciprofloxacin demonstrated the highest overall susceptibility rate (70.7%) against P. aeruginosa (2,843 strains) followed by piperacillin/tazobactam (57.0%) and imipenem (56.4%) against Acinetobacter spp. (64 strains), imipenem (MIC₉₀ 8 μg/ml; 87.0%) was the most active agent followed by meropenem (MIC₉₀ 16 μg/ml; 81.9%) and tobramycin (MIC₉₀ >8 μg/ml; 81.4%).
2. Tobramycin demonstrated the highest overall susceptibility rate (70.7%) against P. aeruginosa (2,843 strains) followed by piperacillin/tazobactam (57.0%) and imipenem (56.4%) against Acinetobacter spp. (64 strains), imipenem (MIC₉₀ 8 μg/ml; 87.0%) was the most active agent followed by meropenem (MIC₉₀ 16 μg/ml; 81.9%) and tobramycin (MIC₉₀ >8 μg/ml; 81.4%).

3. Overall, the carbapenems showed the widest activity among the broad-spectrum antimicrobial agents tested in the USA MYSTIC Program followed by tobramycin and piperacillin/tazobactam.

4. Among the non-Enteric Gram-negative bacilli tested, meropenem was more potent (lower MIC₉₀ and MIC₉₀) and demonstrated higher susceptibility rates against P. aeruginosa, A. baumannii, and Prevotella spp. in Burkholderia spp. and Acinetobacter spp. groups. Imipenem showed higher in vitro activity than meropenem only against Acinetobacter spp. and other non-Enteric Gram-negative bacilli groups.

5. The susceptibility and resistance rates remained stable among P. aeruginosa and other non-Enterobacteraceae Gram-negative bacilli in the 1999-2005 period but clinical isolates have been documented for some species.

CONCLUSIONS
1. Continued surveillance is warranted to monitor the activity of the carbapenems and broaden broad-spectrum antimicrobial agents against the non-Enterobacteraceae Gram-negative bacilli.

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SELECTED REFERENCES