

SUMMARY OF THESIS*

NICODEMO, Antonio Carlos - **Sensibilidade *in vitro* de isolados de *Stenotrophomonas maltophilia*: comparação de três metodologias (disco-difusão, E-test e ágar-diluição)**. São Paulo, 2003. (Tese Livre Docência - Faculdade de Medicina da Universidade de São Paulo).

SUSCEPTIBILITY *IN VITRO* OF ISOLATES OF *Stenotrophomonas maltophilia*: COMPARISON OF THREE METHODOLOGIES (DISC DIFFUSION, E-TEST AND AGAR-DILUTION)

Stenotrophomonas has emerged throughout the last years as an important agent of nosocomial infection. The treatment of *S. maltophilia* is difficult due to the intrinsic and/or acquired resistance to many classes of antibiotics, such as beta-lactams, aminoglycosides and carbapenems. Currently, there still are doubts concerning the accuracy and inter-relation among the several methods of evaluation of the *in vitro* susceptibility and which antimicrobial agents are more adequate for the treatment.

Objective: The present study was performed with the objective of evaluating and comparing the methods of disc diffusion, E-test and agar-dilution for the determination of the sensibility profile of *S. maltophilia* to seven antibiotics and also to verify the activity of these drugs against the strains studied.

Material and methods: A total of 70 clinical isolates of *S. maltophilia* strains were consecutively collected from May 2000 to May 2002 from individual patients of "Hospital Sírio-Libanês". The antimicrobial susceptibility tests were carried out and interpreted according to the National Committee for Clinical Laboratory Standards (NCCLS) recommendations. The E-test was carried out according to the manufacturer's instructions.

Results and conclusions: There was good agreement among the distinct susceptibility testing results for chloramphenicol, doxycycline, gatifloxacin, trimethoprim-sulfamethoxazole and ticarcillin clavulanate, suggesting that the disc diffusion and E-test methods are reliable for testing this group of antimicrobials against *S. maltophilia*. In contrast, a

weak correlation was found between the disc diffusion and agar dilution techniques for testing polymyxin B and colistin with unacceptable very major error rates (18.1% and 22.7% for polymyxin B and colistin, respectively). Trimethoprim-sulfamethoxazole (MIC₅₀, 0.06 mg/L; 98.5% susceptible) and gatifloxacin (MIC₅₀, 0.12 mg/L; 98.5% susceptible) were the most potent antimicrobial agents tested against *S. maltophilia* isolates. In contrast, the worst *in vitro* activity was found for ticarcillin-clavulanate (MIC₅₀, 16 mg/L; 59.1% susceptible). Although our results confirm that trimethoprim-sulfamethoxazole, gatifloxacin and doxycycline have an excellent *in vitro* activity against *S. maltophilia*, further clinical studies are necessary to evaluate the clinical efficacy of these compounds for the treatment of *S. maltophilia* infections, since no randomized controlled trials have been carried out and no correlation between the clinical response and susceptibility testing results has been reported.

The comparison of the disagreeing results between the disc diffusion and agar dilution methods demonstrated a great quantity of "false-susceptibles" obtained by disc diffusion and reaffirm the low accuracy of this method to test the polymyxin B and colistin against isolates of *S. maltophilia*. Therefore, the susceptibility of *S. maltophilia* to the polymyxins should be evaluated only through dilutional methods.

Antonio Carlos Nicodemo
Departamento de Moléstias Infecciosas e Parasitárias
Faculdade de Medicina da USP
acnicode@usp.br

*This thesis is available at the Library of the Instituto de Medicina Tropical de São Paulo