Stenotrophomonas maltophilia: resistance to trimethoprim/sulfamethoxazole and quinolones in cystic fibrosis and non-cystic fibrosis patients

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Stenotrophomonas maltophilia is an emerging multi-drug-resistant global opportunistic pathogen involved in nosocomial infections. It is also an important pulmonary pathogen in cystic fibrosis patients (CF). Fluoroquinolone and trimethoprim/sulfamethoxazole (TMP-SXT) are drugs of choice for the treatment of infections caused by S. maltophilia but increasing resistance has been reported. This study determined the susceptibility profile of S. maltophilia strains obtained from CF patients assisted in two CF reference centers and hospitalized non-cystic patients (NCF) assisted in a teaching hospital in Rio de Janeiro, Brazil. A total of 226 isolates from different clinical specimens were identified using conventional methods and evaluated by the Kirby-Bauer disk diffusion method (DD) to levofloxacin, minocycline and trimethoprim/sulfamethoxazole (TMP-SXT). The minimal inhibitory concentration (MIC) of ciprofloxacin (CIP), ceftazidime (CAZ) and TMP-SXT was determined by microdilution method according to Clinical and Laboratory Standard Institute. Fifty two samples (23%) were obtained from CF patients and most of all isolated from sputum (92.3%). The majority of 174 samples (n=77%) obtained from NCF patients were isolated from secretion/aspirate tracheal (51.5%), sputum (27%) and blood (12.1%). By DD test all samples (n=52) of CF patients were susceptible to all evaluated antimicrobials. Only 8 (3.54%) S. maltophilia strains isolated from NCF patients were resistant to TMP-SXT and levofloxacin. To determine the MIC we selected samples that showed resistance to any antimicrobial in the DD test; samples isolated from blood and one isolate for each CF patients, totaling 78 samples. The MIC for TMP-SXT ranged from 0.031 to 32ug/mL with MIC₉₀ of 1ug/mL. The MIC for CAZ ranged from 0.5 to 256ug/mL (MIC₉₀=128ug/mL), and the MIC for CIP ranged from 0.5 to 32 ug/ml (MIC₉₀=8ug/ml). Using MIC determination, CIP was the antimicrobial with the highest percentage (62.8%) of resistant strains (30.77% from CF and 32.05% from NCF). Considering the simultaneous resistance, 22 samples (28 %) isolated from 14 CF and 8 NFC patients were resistant to CAZ + CIP. Five isolates of NFC were resistant to CIP + TMP-SXT. Continuous monitoring of resistance to important antibiotics is warranted to provide appropriate antimicrobial regimens for treating S. maltophilia infections.

Palavras-chaves: Stenotrophomonas maltophilia, antimicrobial resistance, cystic fibrosis, resistance to quinolones, resistance to trimethoprim/sulfamethoxazole

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