SUSCEPTIBILITY TESTING OF *MYCOBACTERIUM KANSASII* STRAINS ISOLATED FROM PATIENTS BETWEEN 2000 AND 2015 IN POLAND

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INTRODUCTION

Nontuberculous mycobacterial (NTM) infections including those caused by *Mycobacterium kansasii* appear to be increasing worldwide. In Poland, *M. kansasii* accounts for over a third of the total NTM isolations. Reports on drug susceptibility of this species are very scarce. The aim of this study was to determine drug susceptibility profiles of *M. kansasii* strains isolated from patients of a pulmonary clinic (Department of Internal Medicine, Pulmonology, and Allergology, Warsaw Medical University) in Warsaw, Poland.

MATERIALS AND METHODS

The study included 62 *M. kansasii* strains collected from as many patients of the Department of Internal Medicine, Pulmonology, and Allergology, Warsaw Medical University between 2000 and 2015. Patients (40 women and 22 men; age range: 21 to 89 years; median age: 64.5 ± 17.9 years) were classified as having or not having an infection, following the criteria of the American Thoracic Society (ATS). Susceptibility testing to 8 anti-TB drugs: rifampicin (RMP), amikacin (AMK), ethambutol (EMB), isoniazid (INH), streptomycin (STR), clarithromycin (CLM), kanamycin (KAN) and trimethoprim/ sulfamethoxazole (SXT), was performed by the E-test method, strictly according to the manufacturer's instructions (bioMérieux®). As a control, the *M. kansasii* ATCC12478 strain was used. The critical concentrations of tested drugs were based on Clinical and Laboratory Standards Institute guidelines, and in their absence – on literature data.

Drug	Critical concentration [mg/L]	No of resistant strains (%)	No of susceptible strains (%)	Average MIC (value of MIC on the E-test strip)	MIC_{50}	MIC_{90}
RMP	1	0 (0%)	62 (100%)	0.011 ± 0.008 (0.012)	0.008	0.023
AMK	32	0 (0%)	62 (100%)	2.12 ± 1.96 (2)	1.5	4
STR	10	1 (2%)	61 (98%)	18.51 ± 129.8 (16)	1.5	4
EMB	4	2 (3%)	60 (97%)	1.01 ± 1.78 (1)	0.5	1.5
CLM	16	2 (3%)	60 (97%)	8.32 ± 45.6 (8)	0.047	0.094
KAN	4	22 (35%)	40 (65%)	4.91 ± 5.73 (4)	2	12
INH	4	53 (85%)	9 (15%)	218.84 ± 90.90 (192)	>256	>256
SXT	2/38	62 (100%)	0 (0%)	>32/608	>32/608	>32/608

RESULTS

Of the 62 patients under the study, 38 (61.3%) met ATS criteria for the definition of the *M. kansasii* disease, whereas 24 (38.7%) patients did not have the *M. kansasii* disease.

All strains tested exhibited full susceptibility to RMP (MIC<1 mg/L) and AMK (MIC<32 mg/L). The number of strains showing resistance to INH (MIC >256 mg/L), KAN (MIC≥4 mg/L), EMB (MIC≥8 mg/L), CLR (MICs>256 mg/L), STR (MIC>1024 mg/L) was 53, 22, 2, 2, and one, respectively. All strains were found resistant to SXT (MIC>32/608 mg/L).

Strains from patients who met the ATS case definition criteria for disease had their MIC_{90}s for RMP higher than strains from patients with no *M. kansasii disease* (0.023 vs 0.016 mg/L).

CONCLUSIONS

The results showed a high activity of tested drugs against clinical strains of *M. kansasii*, except for SXT, INH, and KAN.

The study was financed by the National Centre for Research and Development «LIDER» Programme (LIDER/044/457/L-4/12/NCBR/2013)