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### Broth microdilution susceptibility testing and species identification of the clinical isolates of *Nocardia* in Iran

A. Hashemi Shahraki<sup>1</sup>, P. Heidarieh<sup>2</sup>, M. Hashemzadeh<sup>3</sup>

<sup>1</sup>Department of Epidemiology- Pasteur Institute of Iran, Tehran, Iran, Tehran, Iran

<sup>2</sup>Department of Bacteriology and Virology- Alborz University of Medical Science, Karaj, Iran, Karaj, Iran

<sup>3</sup>Health Research Institute- Infectious and Tropical Diseases Research Center, Jundishapur University of Medical Sciences, Ahvaz, Iran, Ahvaz, Iran

#### Objectives

Nocardiosis is neglected infectious disease in Iran because of endemicity of tuberculosis. The aim of this study was to characterize clinical isolates of *nocardia* in Iran which were recovered from culture negative tuberculosis cases, and determine their antimicrobial susceptibility of the isolates.

#### Methods

During 2013-2014, total number of 21 aerobic actinomycete strains which were isolated from culture negative tuberculosis cases were referred to Infectious and Tropical Disease Research Center, Ahvaz, Iran for identification. Based on phenotypic characterization 17 *nocardia* spp. and 4 other aerobic actinomycetes were investigated using 16S RNA sequence-based identification. The clinical isolates of *nocardia* were subjected to broth microdilution test to access the isolates susceptibility patterns.

#### Results

The most frequent underlying condition among the patients were organ transplantation (6 patients), non-infectious chronic lung disease (6 patients), cancer (4 patients), human immunodeficiency virus (HIV) (3 patients), and tuberculosis (2 patients). The isolates were identified to the species level using 16S rRNA as follow; *N. asteroides* (n=5), *N. cyriacigeorgica* (n=4), *N. farcinica* (n=4), *N. abscessus* (n=2), *N. otitidiscaviarum* (n=1) and *N. nova* (n=1). Four other aerobic actinomycetes isolates comprised *Rhodococcus equi* (n=2), *Gordonia bronchialis* (n=2) and *Tsukumurella pulmonis* (n=1). The only antibiotic to which members of all of the *Nocardia* species tested were susceptible was amikacin. Two strain of *N. farcinica* and one *N. asteroides* were resistant to trimethoprim-sulfamethoxazole.

#### Conclusion

The current study revealed that aerobic actinomycetes particularly *nocardia* should be considered among the culture negative tuberculosis cases.