Clinical Significance of Nontuberculous Mycobacteria (NTM) Isolates among TB Suspects

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Background: Nontuberculous mycobacteria (NTM) are increasingly reported worldwide. Defining the significance of NTM in setting of endemic tuberculosis (TB) requires the discrimination of NTM from TB in suspected patients. There are no data regarding the frequency and significance of NTM among patients with suspected pulmonary tuberculosis in Thailand.

Methods: A cross-sectional study was conducted between January and December 2015 at Siriraj Hospital, Bangkok, Thailand. We reviewed clinical characteristics, radiographic findings, and laboratory results of 261 TB suspects whom NTM was isolated from the sputum. Patients were then classified into 3 groups, including pulmonary TB, pulmonary NTM, and NTM colonizer. Pulmonary NTM disease was diagnosed by the American Thoracic Society’s diagnostic criteria for NTM disease 2007. Binary regression model was constructed to identify the predictors of pulmonary NTM disease in this population.

Results: There were 40 (15.3%) patients with pulmonary NTM disease, followed by 43 (16.5%) and 178 (68.2%) patients with pulmonary tuberculosis and NTM colonizer, respectively. Overall identified NTM species included M. fortuitum 73 (28%), M. abscessus 67 (25.7%), MAC 48 (18.4%), M. gordonae 25 (9.6%), M. kansasii 9 (3.4%), and M. simiae 8 (3.1%). The number of female patients was more than males in the pulmonary NTM group (70%), while the pulmonary TB group experienced a reverse pattern (44%). Median age in both groups was comparable. Among patients with pulmonary NTM, M. abscessus was the most common causative species (14 patients, 35%), followed by MAC (13 patients, 32.5%), M. kansasii (5 patients, 12.5%), M. fortuitum (4 patients, 10%), and M. simiae (4 patients, 10%). Multivariate analyses revealed that dyspnea on exertion (OR 6.04, 95%CI 1.53-23.82), bronchiectatic changes on chest radiography (OR 7.86, 95%CI 1.29-47.90), and 3 or more consecutive isolated of the same NTM spp. from sputum (OR10.68, 95%CI 2.06-55.34) were independent factors associated with NTM pulmonary disease in this population.

Conclusion: Pulmonary NTM disease among TB suspects is a diagnostic and therapeutic challenge. M. abscessus, MAC, and M. kansasii are NTM emerging as important causes of pulmonary NTM in Thailand.

Keywords: Nontuberculous mycobacteria