DOI: 10.5152/TurkThoracJ.2019.132

[Abstract:0568] MS-189 [Accepted: Oral Presentation] [Tuberculosis]

Remarkable Diversity in Geographic Distribution of NTM Species in Bursa, Turkey: Analysis of Nontuberculous Mycobacteial Pulmonary Disease in a Two Years Retrospective Cohort

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Objectives: Non-tuberculous mycobacteria (NTM) are abundant in our environment. Geographic distribution of NTM species vary between continents and countries. These differences might drive local epidemiology of NTM disease and guide essential knowledge for daily clinical practice. However, significant knowledge gap exists concerning geographic distribution of NTM species. Infections with NTM represent an increasingly recognized problem in humans. We aimed to characterize clinical and microbiologic characteristics of the NTM isolates causing pulmonary disease in our center for the last two years.

Methods: Retrospective cohort study of NTM - pulmonary disease (NTM-PD), between January 2016 – December 2017. NTM – PD diagnosis was made using the ATS/IDSA diagnostic criteria. Clinical, radiological and bacteriological findings, all-cause mortality and mortality due to NTM-PD patients were recorded.

Results: A total of 41 patients (median 59.0 (IQR 25 -75: 42.5 – 71.5)) years old (29 males, 70.7%) diagnosed with NTM disease were included. Of those, 35 patients were diagnosed with NTM-pulmonary disease (NTM-PD). Slowly growing NTM (n=20, 60.6%) were more frequent compared to rapidly growing NTM (n=13, 39.4%), p=0.063. The most frequently identified NTM species were M. fortuitum (n=9, 25.7%), M. lentiflavum (n=7, 20.0%), followed by M. abscessuss (n=4, 11.4%) and M. kansasii (n=4, 11.4%), respectively. 9 (36.4%) patients had fibro-cavitary disease; whereas 17 (65.3%) had nodular-bronchiectatic disease. All-cause mortality was 34.3%, and was similar between slowly growing (n=7, 21.2%) vs. rapidly growing NTM-PD (n=4, 12.1%), respectively (p=0.801).

Conclusion: MAC and M. gordonae were the most frequently isolated NTM species worldwide and Turkey, respectively. Contrastingly, distribution of the NTM species in our center were different than worldwide and countrywide distribution patterns. The clinical relevance of geographic diversity and predictors for mortality are still largely unknown in NTM patients, further research is warranted.

Keywords: Non-tuberculous mycobacteria, NTM - pulmonary disease, nodular-bronchiectatic disease, fibro-cavitary disease