A CASE OF MYCOBACTERIUM SIMIAE IN AN ELDERLY WOMAN

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HISTORY

A 61 year old female with no comorbidities

2007 – Pulmonary Tuberculosis

2013 – Post tuberculosis lung disease(bronchiectasis with OAD) and treated with inhaler therapy

HISTORY

2018 – Clinical suspicion of recurrent PTB

⬇

sputum and FOB plus BAL showed *AFB positive*

⬇

Xpert MTB RIF negative and culture negative

⬇

clinical suspicion of NTM

⬇

HRZE with clarithromycin for 12 months

In October 2021, patient came with complaints of cough with expectoration, low grade fever and shortness of breath for 1 week duration

General physical exam were unremarkable

Respiratory system exam–Bronchial breath sounds B/L ICA

Lab - unremarkable

Chest Xray showed fibrocavitatory lesions bilateral upper zone

MANAGEMENT

Sputum smear was positive for AFB and Xpert MTB RIF not detected

Mycobacterium simiae was identified using the ***DNA whole genome sequencing method***

Drug susceptibility testing (DST) revealed no resistance.

Combination of Rifampicin 300mg, Isoniazid 150mg, Ethambutol 500mg, Clarithromycin 500mg and Moxifloxacin 400mg orally

Serology testing for HIV, Hepatitis B, Hepatitis C were negative. CD4 count and CD4 to CD8 ratio were normal

Discussion - NTM

Nontuberculous mycobacteria (NTM) are ubiquitous in our environment in soil and water

Most common pathogenic Non Tubercular Mycobacteria are ***M.Avium, M. Intracellularae, M.kansasii***

Most common contaminants from water are M. gordonae, M. terrae complex, and M. mucogenicum

Diagnosis of NTM requires Clinical, Radiological and Microbiological Criteria to be met

(An Official ATS/IDSA Statement: diagnosis, treatment and prevention of nontuberculous mycobacterial diseases. Am J Respir Crit Care Med. 2007;175(4):367–416)

DISCUSSION- M.Simiae

Mycobacterium simiae is a rare species of Non-Tuberculous mycobacteria (NTM). *M. simiae* is transmitted by inhalation of aerosols or by inoculation.

Risk factors include ***chronic obstructive pulmonary disease, bronchiectasis, cystic fibrosis or Prior pulmonary tuberculosis*** or HIV positive status or post organ transplant status.

Molecular identification is preferred method for identification of NTM species

The incidence and prevalence of NTM pulmonary diseases are increasing
The rate of M.simiae isolation is 30% among slow growing NTM
(*Shenai S et al. Time to identify and define non-tuberculous mycobacteria in a tuberculosis-endemic region. Int J Tuberc Lung Dis. 2010; 14(8):1001–8*)

DISCUSSION- TREATMENT OF NTM

The current ATS/IDSA 2020 guidelines on NTM suggests a 3- drug regimen that includes a macrolide (azithromycin or clarithromycin) over a regimen without macrolide.

In patients with rifampicin susceptible pulmonary disease, a regimen of rifampicin, ethambutol and either isoniazid or macrolide is suggested.

A combination therapy of Moxifloxacin, macrolide and a third antibiotic (TMP-SMX, Linezolid, Amikacin) have reaped good results in *M.simiae* infection

Charles L. Daley et al.Treatment of Nontuberculous Mycobacterial Pulmonary Disease: An Official ATS/ERS/ESCMID/IDSA Clinical Practice Guideline,Clinical Infectious Diseases® 2020;71(4):e1–e36[3]

DISCUSSION

For our patient, we initiated a combined regimen of Clarithromycin, Rifampicin, Ethambutol, Isoniazid and Moxifloxacin. The regimen was well tolerated and patient showed good clinical improvement

The optimal duration of treatment is to receive the combination therapy for at least 12 months after culture conversion

The low cure rates for *M.Simiae* infection are well attributed to high rates of resistance to macrolides and first line anti tuberculous drugs and very little data on drug susceptibility and no standard treatment regimens

LEARNING OBJECTIVE

growing prevalence of NTM pulmonary infections

evaluate for NTM in patients with underlying lung disease and/or with history of prior pulmonary tuberculosis, immunocompromised status

Importance of Culture and Molecular techniques in identification of species of causative microorganism

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