

# Genus *Mycobacterium* as an etiological agent of pulmonary infection in Sri Lanka

Chamila Adikaram<sup>1</sup>, Jennifer Perera<sup>1</sup>, Sulochana Wijesundera<sup>2</sup>

<sup>1</sup>Department of Microbiology, Faculty of Medicine, University of Colombo

<sup>2</sup>Department of Biochemistry and Molecular Biology, Faculty of Medicine, University of Colombo

## Introduction

Only a few species of genus *Mycobacterium* are obligatory aetiological agents of pulmonary disease in humans. Among them, the *Mycobacterium tuberculosis* complex (MTC) causes *tuberculosis*, a disease responsible for high morbidity and mortality globally. Non tuberculous mycobacteria (NTM) are increasingly recognized as a significant cause of chronic pulmonary infections in both immune-compromised and immune-competent patients in the world.

## Objectives

The aim of the study was to evaluate the importance of differentiation of MTC from NTM species in pulmonary infections caused by genus *Mycobacterium* in Sri Lanka.

## Methods

Five hundred and thirty four acid fast bacilli positive sputum collected from Chest Hospital-Welisara and Chest Clinic- Colombo were used for the study. Lowenstein-Jensen (L-J), Middlebrook7H9 broth and paranitrobenzoic acid incorporated L-J media were inoculated using processed and concentrated sputum. Cultures were differentiated as MTC or NTM by phenotypic characterization of colonies, biochemical testing (nitrate reductase) and by PCR amplification of MTC specific 240bp fragment of the *IS6110*, insertion sequence.

## Results

Four hundred and forty two (442) *Mycobacterium* cultures were isolated from 534 Acid fast bacilli (AFB) positive sputum samples. Thus, the culture positivity rate of AFB positive sputum specimens was 83%. Of 442 *Mycobacterium* cultures, 401 isolates were differentiated as MTC. The remaining, 41 isolates were identified as NTM, and were from patients suspected of primary TB (n=29) and secondary TB (n=11).

## Conclusions

The prevalence of TB and NTM was 90.7% and 9.3% respectively among sputum AFB positive pulmonary infectious cohort in Sri Lanka. Although the percentage of NTM is small, it is of significant importance as NTM are resistant to conventional anti-tuberculosis drugs. Furthermore, patients with NTM, but suspected of having resistant TB, will be treated with high cost second line anti-TB drugs leading to higher adverse reactions in patients. Thus, the laboratory identification of NTM disease is a primary requirement in the diagnosis and treatment of pulmonary mycobacterial infections.