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Phenotyping and genotyping identification of non-tuberculosis mycobacterium isolated from pulmonary tuberculosis suspected patients in Basrah Governorate

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ABSTRACT

Aims and objectives: This research aims to identify non-tuberculosis mycobacterium (NTM) species by conventional biochemical and genetic methods.

Methods: A total of 150 sputum samples were collected from suspected tuberculosis (TB) patients who attended the center of Chest and Respiratory Diseases in the Basrah Governorate during the period from 01/01/2013 to 1/10/2013.

All specimens were stained by the Ziehl-Neelsen method, and all negative and positive samples for this method were cultured on Lowenstein-Jensen medium slant, Middlebrook 7H10, 7H11 agar-serum based and Middlebrook 7H9 broth. Drug susceptibility was tested with antibiotics (Rifampicin 1 μg/ml, Ethambutol 2 μg/ml, Pyrazinamide 0.25 μg/ml, Isoniazid 0.2 μg/ml and Streptomycin2 μg/ml).

Results: Thirty-nine positive samples for Ziehl-Neelsen and growth on Lowenstein-Jensen medium were identified by biochemical tests, including: Niacin accumulation, Nitrate reduction, Catalase, Iron uptake, Aryl sulfatase, Hydrolysis of Tween 80, Growth in 5% NaCl, Tellurite reduction, Growth on MacConkey, Pyrazinamidase, Urease and pigmentation.

The current results showed that 39 samples (26%) were positive for acid fast bacilli and were identified as *Mycobacterium*, and 32 of those samples (82.05%) were identified as slow growing mycobacteria, of which 23 (58.97%) samples were identified as *M. tuberculosis*, 4 (10.25%) as *M. avium* complex, 2 (17.94%) as *M. flavescens*, 2 (17.94%) as *M. simiae*, and 1 (2.56%) as *M. kansasii*. The remaining 7 samples (17.94%) were rapid growing mycobacteria, of which 4 samples (10.25%) were identified as *M. chelonae*, 2 samples (5.12%) as *M. abscessus*, and 1 sample (2.56%) as *M. smegmatis*.

All samples were identified using PCR-based tests for genetic markers.

Conclusions: This study emphasizes that NTM is present at high frequency, especially among TB-suspected patients, and this requires confirmation on a follow-up basis, along with the examination of patterns of sensitivity, and is an absolute necessity rather than the current hour in a health center in Iraq.

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