

## Isolation, Identification and Antimicrobial Susceptibility of *Mycobacterium tuberculosis* among Pulmonary Tuberculosis Patients

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**Abstract :** Background: Drug-resistant pulmonary tuberculosis (DR-PTB), particularly multidrug-resistant tuberculosis (MDR-TB) and pre-extensive drug-resistant (pre-XDR), is a major challenge in effectively controlling TB, especially in developing. This study aimed to identify the strains of *M. tuberculosis* complex (MTC) and drug resistance patterns among the pulmonary tuberculosis patients. Methods: The study used a cross-sectional design, and 815 patients were recruited randomly in three study periods. In the first-period, 210 treated PTB patients, who were completed their treatment, received their diagnoses using light microscopy, fluorescence microscopy and cultured on Lowenstein-Jensen (L-J) slant, and then strains were identified as MTC by biochemical tests, and then sensitivity test in National Institute of Diseases of the Chest and Hospital. In the second-period, 220 re-treated PTB patients, who were completed their treatment, received their diagnoses using culture on L-J slant, line probe assay (LPA), and GeneXpert in the same hospital. In the last-period, during treatment, 385 MDR-PTB patients received their diagnoses using culture on L-J slant and LPA in the same hospital. Results: Among sixty-two (29.5%) PTB patients, 13% were sensitive to all first-line anti-TB drugs, 26% were MDR-TB patients, and 14.2% were pre-XDR-TB among 14 MDR-TB patients. After three years, 31% were MDR-TB among 220 re-treated PTB patients. After five years, 16.4% was pre-XDR-TB among 385 MDR-TB patients. Compared to females, male patients were significantly higher at all times. Conclusion: The current study demonstrated that in three study periods, the proportions of DR-TB, MDR-TB, and pre-XDR patients were an alarming issue and increasing daily.

**Keywords :** multi-drug resistant, drug-resistant, pre-extensive drug resistant, pulmonary tuberculosis

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