PATTERNS OF DRUG RESISTANCE AND RFLP ANALYSIS OF *MYCOBACTERIUM TUBERCULOSIS* STRAINS ISOLATED FROM RECURRENT TUBERCULOSIS PATIENTS IN SRI LANKA

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Abstract. The aim of the study was to determine drug sensitivity and DNA fingerprints of *Mycobacterium tuberculosis* strains from retreatment cases of pulmonary tuberculosis. The study population consisted of 131 culture positive, retreatment tuberculosis patients admitted to the Chest Hospital, Welisara, Sri Lanka who had taken anti-tuberculosis drugs previously. Forty-eight percent of the isolates were susceptible to all 12 drugs tested. Twenty isolates were resistant to first line drugs, 28 to both first and second line drugs and 17 to second line drugs. Forty-six percent were resistant to a single drug, 23% to two and 19% to 3 drugs, respectively. Resistance to *p*-aminosalicylic acid (15%) was most common followed by ethambutol (14%), isoniazid and pyrazinamide (12%). Multi-drug resistance was present in four isolates. Using RFLP analysis the copy number and IS *6110* element in *M. tuberculosis* strains varied from one to seven, the majority having 3 to 5 copies. The prevalence of acquired drug resistance to individual drugs was comparatively lower except resistance to ethambutol. The majority of retreatment patients belonged to the defaulter category and this stresses the importance of implementing directly observed treatment short course and susceptibility testing of isolates in retreatment TB patients to prevent the spread of drug resistance. By using the IS *6110* genetic marker it was possible to differentiate most of the *M. tuberculosis* isolates. However, for an unambiguous confirmation of the identities of strains, additional genetic markers should be employed in strain typing such as spoligotyping.

Key words: *Mycobacterium tuberculosis*, drug resistant patterns, RFLP analysis, recurrent TB patients

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