

Title: PROFILE OF ANTIBIOTIC SUSCEPTIBILITY OF *Mycobacterium tuberculosis* STRAINS ISOLATED FROM RECURRENT TUBERCULOSIS CASES

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Abstract:

The emergence of resistance to anti-tuberculosis drugs has been increasing worldwide, being registered annually nearly half a million multidrug-resistant tuberculosis (TB) cases. Recent studies have reported the drug resistance as a possible risk factor for the recurrent of TB. High recurrence rates already have been identified in patients with a prior history of treatment of the disease, even when this was completed with success. This study aimed to identify cases of recurring TB in patients diagnosed at the Núcleo de Pesquisa em Microbiologia Médica (NUPEMM) da Universidade Federal do Rio Grande, in the Rio Grande city, Rio Grande do Sul, Brazil, between 2003-2013; and characterize the sensitivity profile of these *Mycobacterium tuberculosis* clinical isolates. The determination of Minimum Inhibitory Concentration was performed by Resazurin Microtitre Assay method. During the study period were identified a total of 625 TB patients, of which 46 had recurrent episodes of TB and these were selected for the study. Among patients eligible for the study, the average age was 38.77 years and the majority were male (76.09%). In relation to HIV co-infection, there was no significant difference in the study group. About the average duration free of TB between the episodes of the disease, this was 11.64 months (range 8.74 to 15.39), which may be related to endogenous reactivation that generally occurs in premature cases of recurrence of the disease. The sensitivity tests to isoniazid (INH) and rifampicin (RIF) were conducted only in 35 isolates, in which 84.62% of them were sensitive to both drugs, 8.97% were INH-mono-resistant, 2.56% were RIF-mono-resistant and 3.85% were resistant to INH and RIF (MDR-TB). When evaluating the resistance to anti-TB drugs from *M. tuberculosis* strains isolated from the same patient in different times, it was observed that the first and second episodes of TB were composed of INH-mono-resistant in 3.85% and 5.13% of the cases, respectively. Regarding RIF-mono-resistant was found only in the second episode of TB in 2.56% of the cases, possibly both cases of secondary resistance/acquired. Already, in the cases of MDR-TB, occurred in 3.85% of the cases in the third episode of TB and possibly also can be related to secondary resistance/acquired. A single patient with a fourth TB episode identified had all the sensitive strains. The resistance to INH or RIF or both together occurred more frequently in strains obtained from the second episode of the disease, indicating a higher rate of drug resistance in the group of recurrent cases studied. This fact has been demonstrated in several works that patients with previous history of TB treatment have a higher risk of to develop resistance to anti-TB drugs when compared to the patients with new cases of TB.

Key words: *Mycobacterium tuberculosis*, recurrence, resistance

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