

GENETIC CHARACTERIZATION OF MULTIDRUG RESISTANT TUBERCULOSIS ISOLATES IN LISBON IN 2003

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Purpose of the study: The worldwide emergence of Multi-Drug Resistant Tuberculosis (MDR-TB) poses as a serious threat to tuberculosis (TB) treatment and control. In 2003, Portugal reported a TB incidence rate of 36.4/100 000 and a primary MDR-TB incidence of 1.5%. However, in Lisbon Health Region only, we have identified 116 MDR-TB strains in 1200 *Mycobacterium tuberculosis* isolated strains. Therefore, our objectives were to assess the MDR-TB and Extensive Drug Resistant Tuberculosis (XDR-TB) situation in Lisbon, through a molecular epidemiological approach combined with mutational analysis.

Methods: Fifty-eight MDR-TB strains were collected from several hospital units across Lisbon Health Region. All isolates were typed by Mycobacterial Interspersed Repetitive Units (MIRU) and, screened for mutations conferring resistance to isoniazid, rifampicin, streptomycin and pyrazinamide accordingly to their resistance pattern. Drug susceptibility tests for second-line drugs were performed to 51 isolates.

Results: Nine MIRU clusters were identified, 5 of which belonging to family Lisboa, whose strains are responsible for 55.2% of all cases of MDR-TB in this study. Among the identified clusters, although no significant outbreak was detected, several community and nosocomial transmission events may have been detected through a mutational analysis of the clustered isolates. The prevalence of mutations conferring resistance to isoniazid, rifampicin, streptomycin and pyrazinamide in the studied isolates, were also determined. The prevalence of XDR-TB cases was 46.6%.

Conclusion: We can conclude that MDR-TB transmission is still occurring, especially of strains of the Lisboa family. Such strains remain responsible for the majority of MDR-TB cases and special attention must be given to possible cases of nosocomial transmission. We have determined the prevalence of mutations conferring drug resistance. We have also found a high prevalence of XDR-TB cases, a situation that requires urgent attention.