

Molecular detection of *Mycobacterium lepromatosis* in patients with leprosy in a region of high and low prevalence in Brazil.

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Phylogenetic studies demonstrated in 2008 the emergence of a new species of mycobacteria, *Mycobacterium lepromatosis* (*M. lepromatosis*), which is associated with a rare form of diffuse lepromatous leprosy, with a typical phenomenon of Lucio's phenomenon, a relatively rare occurrence in our country, when compared with the incidence in Mexico and Central American countries. With complete genome sequence of *M. lepromatosis*, a syntenia of 92% was observed with *Mycobacterium leprae* (*M. leprae*) genome, showing a high similarity share. Studies of comparative genomics have shown that leprosy has been following evolution and human migration in the last 100,000 years. The aim of this study was to investigate the presence of this new mycobacteria in a panel of DNA of patients diagnosed with leprosy in regions of high and low endemia in Brazil. This retrospective study included a panel of 207 DNA samples extracted from skin biopsies of patients diagnosed by spontaneous demand at the Center of Dermatology "Lauro de Souza Lima Institute", Bauru / SP, and at the Reference Center Jardim Guanabara in the Rondonópolis - MT municipality. Clinical classification of patients was performed according to Ridley and Jopling. A multiplex PCR system was used for the differentiation between *M. leprae* (RLEP repetitive sequence) and *M. lepromatosis* (*hemN* gene), which when submitted to electrophoresis showed patterns of 450 and 244 base pairs (PB), respectively. Thirty-two patients were classified as BB, 29 BL, 30 BT, 87 LL and 22 TT. A total of 44 samples showed positive results for *M. lepromatosis*, 78 confirmed as *M. leprae* and 17 with mixed infection pattern. The results showed the presence of *M. lepromatosis* in paucibacillary and multibacillary patients, indicating that this mycobacteria is not restricted only to patients with phenomenon of Lucio's. Studies of this nature are of great importance to elucidate the real distribution of this mycobacteria in different localities and is promising way to better understand its epidemiology and evolution. From a clinical point of view, the identification of *M. lepromatosis* allows to enlarge the studies on its pathogenesis and a better understanding of its route of transmission and geographical distribution.

Keywords: *Mycobacterium lepromatosis*; *Mycobacterium leprae*; phenomenon of Lucio's; *hemN*, RLEP

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