Polymorphisms in Genes *IL6, IL10* and *INFγ* are not associated with cytokine serum production in patients with leprosy from Amazon Region

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Background: Leprosy or Hansen's disease is a spectral disease whose clinical form mostly depends on host's immune and genetic factors of the individual infected with *Mycobacterium leprae*. Polymorphisms present cytokine genes have shown to influence the gene transcription. We investigated whether SNPs in cytokine genes are associated with Leprosy patients from southwest of Pará state, Brazil. **Materials and Methods:** Five SNPs were analyzed by PCR-SSP in three cytokine genes (*INFγ, IL6* and *IL10*). The plasmatic cytokines were quantified by human Cytometric Bead Array Flex Set for IL-6, IL-10, and IFN-γ, all purchased from BD Biosciences Pharmingen in the serum of a subgroup of individuals with (n= 25 multibacillary and 28 paucibacillary) and without leprosy reactions (n= 55). Statistical analyses were carried out using the Graph-Pad Prism software, version 6.0 and the correlation within the groups between cytokine levels and polymorphism of the five gene evaluated, was assessed by Kruskall-Wallis test. **Results:** No significant association was found between the polymorphisms tested and cytokine level. **Conclusions:** All together our data points that the SNPs markers may have not a regulatory role in the immunity against *Mycobacterium leprae*, by driving the host's production of key cytokines involved in the pathogenesis of this disease. However, due to the obvious importance of cytokine effects in Leprosy, further studies that elucidate the complex host-parasite interactions could be useful for pathophysiology understood.

Keywords: Polymorphisms, Cytokine, Amazon Region, Leprosy.