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Genetic association of interferon gamma induced protein-10 (IP-10), CXCL-10 gene polymorphisms with TB pleurisy susceptibility in South Indian population

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Background: Chemokines are involved in both innate and adaptive responses. Tuberculosis pleurisy may be caused due to spread of infected macrophages/ monocytes trafficking from the lung. CXCL-10 known as Interferon gamma-induced protein 10 (IP-10) or small-inducible cytokine 10 is 8.7 Kda protein, which is secreted in response to IFN- γ by monocytes, endothelial cells and fibroblasts. It has chemo-attraction for monocytes/macrophages T cells, NK cells and dendritic cells in promotion of T cell adhesion to endothelial cells.

Aim: In the present study, we investigated whether polymorphisms in CXCL-10 gene have any role contributing to disease manifestation of TB pleurisy.

Materials & Method: Two SNPs in CXCL-10 promoter (-1447A>G and -135G>A) were genotyped in 186 TB Pleurisy, 159 Pulmonary TB patients and 205 healthy subjects by PCR-RFLP. Disease associations were examined by χ^2 Fisher exact test.

Results: Polymorphisms in the promoter region (-135G>A) genotype GA and allele G frequency were significantly high ($p<0.05$) in TB subjects compared to healthy controls. The genotype AA and allele A was significantly low ($p<0.05$) with TB pleurisy subjects compared to healthy controls. The frequency of haplotype A-G combination of (1447A>G and -135 G>A) was significantly high ($p<0.05$) in TB pleurisy.

Conclusions: Our results reveal that genotype GA and allele G frequency at (-135G>A) position were strongly associated with rendering susceptibility to tuberculous pleurisy. The GA genotype may be a useful genetic marker for early detection of the disease in high risk individuals.

Biography

Sheikh Ghousunnissa is pursuing her PhD final year under the Supervision of Dr. Vijaya Lakshmi Valluri from Genetics Department, Osmania University.

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