TROPICAL DERMATOLOGY

POLYMORPHISM OF CYTOKINE GENE PROMOTER REGION MAY BE ASSOCIATED WITH CLINICAL NON-RESPONSE OF HANSEN'S DISEASE- A CROSS SECTIONAL INSTITUTION BASED STUDY FROM EASTERN INDIA.

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Introduction: It was suggested that cytokine gene polymorphism might be associated with host response to an invading microbe.

Objectives: In this study we tried to find out if there is any association of host gene polymorphism in the IFNγ or in the promoter region of TNF α and IL -6 and the clinical response after multidrug therapy.

Materials and Methods: A total of 417 patients who were diagnosed clinically and/or microbiologically as cases of Hansen disease were included in the study. A tissue sample from lesional skin was analyzed for the presence of bacterial DNA. 35 samples came negative for bacterial DNA were excluded. Tissue samples from the remaining 382 leprosy patients were enrolled (both paucibacillary and multibacillary) in the study for further analysis. All these patients were studied for 1. polymorphism at TNFα (rs1800629G/A and rs361525G/A), and IFNγ (rs62559044A/T), determined by amplification refractory mutation system PCR (ARMS PCR) 2. polymorphism at IL-6 (rs1800795G/C) , determined by custom TaqMan SNP Genotyping Assay system. 112 healthy control cases were also studied for the same.

Results: The 382 cases were followed up for 12 months post completion of MDT. Of these, 246 were found to be clinically MDT responder (MDT-R) 136 patients were found to be clinically MDT non-responder (MDT-NR). Polymorphism of the TNFα genes in both rs1800629 A (OR- 1.569 P < 0.005) and rs361525 A (OR- 1.573 P < 0.005 respectively) were found to be significantly associated with MDT-NR. Polymorphism at IL-6 rs1800795 C (OR- 1.718, P <0.001) was also found significantly associated MDT-NR. However, polymorphism at IFNγ rs62559044 T (OR -1.062 P =0.742) did not showed any association with leprosy MDT-NR.

Conclusion: The study showed that the variant allele at TNF α and IL-6 promoter region can play an important role in disease prognosis and clinical response to MDT.