

## Investigation of PDGF-B (+286) polymorphism in patients with multiple sclerosis and healthy people

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**Introduction :** Multiple sclerosis (MS) is a chronic debilitating disease of the central nervous system(CNS) in young adults with over two million individuals affected worldwide. MS is caused by immune cells that activate a cascade of chemicals in the brain. These chemicals, called cytokines attack to and degrade the myelin sheath that keeps neuronal signals moving. These cytokines drive the inflammation in the brain and attract more immune cells, and cause the debilitating disease marked by loss of neurological function. Different assays have shown that Platelet derived growth factor beta (PDGF-B) gene is one of the inflammation inducers that is involved in different pathological conditions such as multiple sclerosis.

**Objectives :** In this study we examined the PDGF-B(+286) polymorphism in patients with multiple sclerosis. Thus we conducted a case-control study to identify the effect of the functional PDGF-B(+286) polymorphism on susceptibility to MS in patient and normal groups.

**Materials and methods**

In this prospective study we randomly screened 154 MS patients and 144 control individuals to analyze the genetic variations in the PDGF-B gene +286 locus. To detect the PDGF-B polymorphism at +286 position, The genotyping was done in a Thermal Cycler, using the SSP-PCR method. Data were analyzed using Fisher's exact tests with SPSS-v16.

**Result :** The data analysis revealed that A allele was significantly more frequent in MS patients(62.3%) compared with control group (52.7%) (OR=1.48,CI=1.05-2.08,P=0.0202). In addition the frequency of the homozygous (A/A) genotype in this SNP was 39.6% (n=61) and 25.6% (n=37) in MS patients and normal individuals, respectively. In contrast A/G and G/G genotypes were (45.45%, 14.9%) in MS group, and (54.1%, 20.1%) in control group, respectively.

**Conclusion :** Our results have shown that A allele and A/A genotype were significantly more frequent in MS patients. These findings suggest that the A allele at PDGF-B +286 polymorphism may be associated with development of multiple sclerosis in this population.

**Keywords :** Multiple Sclerosis(MS), Polymorphism, PDGF-B.