

## Effect Of Vitamin D And Gene Related Polymorphism In Multiple Sclerosis

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**Introduction:** Multiple sclerosis (MS) is a disease of the central nervous system. MS has a multifactorial nature and various environmental factors or metabolic conditions may have a role in its development. One of the environmental factors is the availability of vitamin D. The special geographical distribution of MS in the world can also be attributed to the reduced availability of vitamin D<sub>3</sub>, due to insufficient exposure to sunlight in some countries, and the lack of active vitamin D may be another possible cause of environmental origin of MS. Genes and polymorphisms associated with vitamin D can cause an increase in the risk of MS. The aim of the present study is to examine the association of genes and single nucleotide polymorphisms (SNPs) with vitamin D availability and incidence of MS.

**Method:** We used Pub Med and Science Direct Database. In this study, the role of vitamin D and its related gene, evaluated for incidence of MS.

**Result:** Low vitamin D status has been associated with multiple sclerosis (MS) prevalence and risk. One of the important functions of vitamin D for incidence of MS is regulating the expression of MHC Class II Allele HLA-DRB1\*1501/rs1544410 polymorphism in vitamin D receptor (VDR) gene has a protective effect for incidence of MS. Vitamin D is activated by CYP27A1 and CYP2R1 and CYP27B1, this latter the active form of vitamin D can be inactivated by CYP24A1. This means that the levels of active vitamin D depend on modifications with CYP27B1, CYP27A1 or CYP2R1, and CYP24A1. Therefore, the expression of these genes and polymorphisms associated with these genes, have a great impact on the incidence of MS.

**Conclusion:** Poor vitamin D status has been associated with an increased risk for development of MS. Vitamin D also has immune-modulatory roles and as a dietary molecule for the treatment of chronic inflammatory diseases such as MS.

**Keywords :** multiple sclerosis, polymorphism, susceptibility, vitamin D