Analysis of Role of Apolipoprotein E Expression Level in Mononuclear Cells and Epsilon Status in Multiple Sclerosis Disease

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Multiple sclerosis (MS) is a common chronic inflammatory disease of central nervous system (CNS) caused by focal infiltration of autoreactive T lymphocytes, monocytes and macrophages followed by immune mediated loss of myelin and axons resulting in the formation of MS plaque. Apolipoprotein E plays an important role in neuroprotective, anti-inflammatory and immune modulatory processes, modulating inflammatory and immune responses in an isoform dependent manner. ApoE is released in plasma predominantly by liver as well as astrocytes and microglia in CNS. ApoE production is reduced by monocytes and hepatocyte incubated with inflammatory cytokines in cell culture. Increased expression of cytokines in blood cells of relapsing-remitting MS may cause downregulated expression of ApoE in monocytes. Thus, we attempt to evaluate the expression level of ApoE in Peripheral Blood Mononuclear Cell (PBMC) of MS patients in comparison with normal individuals by Real-time PCR and determine the association the ApoE genotype and allele with development of MS through multiplex T-ARMS PCR method. Results revealed that there were no significant expression changes in groups of patients compared to the control group. Development of MS disease was 2.1 and 3.5 times higher in ApoE- ε4 carriers and females with ApoE ε2ε4 genotype, respectively, while protection against development of MS was 5 and 4 times higher in ApoE-ε3 carriers and individuals with ε2ε3 genotype, respectively .

Keywords : Multiple sclerosis, ApoE, Gene expression, Genotype, Inflammation, Immune modulates.