

## Frequency of HLA DRB1 Gene Haplotypes in Patients with Multiple Sclerosis in Latvian Population

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**Introduction.** Multiple Sclerosis (MS) is a demyelinating disease of the central nervous system that affects young adults worldwide. The etiology of this disorder is multifactorial. The exact etiology is unknown; however, there is a strong evidence of a genetic component in it. The association with HLA DRB\*01 has been demonstrated in high risk population.

**Aim, Materials and Methods.** The purpose of this study is to determine the presence of HLA-DRB1 alleles in patients with approved MS by McDonald criteria 2010 in Latvia. The study included 81 patients with MS that were approved by McDonald criteria 2010 and 100 healthy control patients from Latvian population. HLA genotyping was performed with PCR method using mixture primers of DRB1 16 allele gene variants. The significance of differences in individual subtypes between patients and controls was assessed by Mantel-Haenszel test and Fisher exact correction for small numbers. The relative risk (RR) and 95 % confidence intervals (CI) were computed by standard methods.

**Results.** Frequency of HLA-DRB1\*15 (RR 5.58 (2.61–12.14); p = 0.01) was significantly increased in multiple sclerosis patients compared with the control group. HLA-DRB1\*04 (RR 1.97 (0.71–5.46); p = 0.14) and -DRB1\*11 (RR 1.34 (0.63–2.82); p = 0.41) were shown to be considerably increased in the patient group, although the difference was no longer significant when the p-value was not corrected for the number of alleles.

**Conclusions.** People with gene alleles HLA-DRB1\*15 and HLA-DRB1\*04 have a higher risk of developing MS in Latvian population. To receive more reliable data on the prevalence of HLA alleles in Latvian patients and their possible association with MS, there is a need for further HLA allele investigation in a larger number of MS patients in combination with the evaluation of radiological and clinical features.

