

Gene HLA DRB*1 Polymorphism Characterization in Latvian TBE Patients

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Introduction. Tick-borne encephalitis (TBE) in recent years is still an acute disease, and the level of incidence of tick-borne disease in Latvia is still one of the highest in Europe.

In order for an efficient immune response to occur against a specific infectious agent, the HLA molecules must link to the peptides derived from this pathogen and the repertoire of the T cells must include clones that can be activated by this HLA-peptide association. Susceptibility to an infectious disease may be due to imperfections in some stages of this system.

Aim. The aim of the study is to investigate polymorphism HLA-DRB1 genes in patients with tick-borne encephalitis in Latvian population.

Material and methods. The study included 84 patients of tick-borne encephalitis and 100 control (healthy) persons. The diagnosis was confirmed clinically, serology tested and imposed at Rīga Eastern Clinical University Hospital. Immunogenetic examinations were performed at Rīga Stradiņš University Immunogenetic Laboratory. HLA genotyping was performed with PCR method using primers with a mixture of DRB1 16 allele gene variants.

Results. Typing of all sixteen alleles of HLA-DRB1 gene was investigated. The frequency of HLA-DRB1 *17(03) (OR 2.63; $p = 0.005$) and HLA-DRB1*04 (OR 2.39; $p = 0.036$) were significantly increased in patients with TBE compared with the control group. Nevertheless, the frequency of allele DRB1*07 (OR 0.33; $p = 0.017$) was lower in patients and significantly higher in controls.

Patients with TBE meningoencephalitis ($n = 29$) were compared with control group and in this patient group DRB1*17 (03) allele (OR 2.64; $p = 0.031$) was significantly increased.

Conclusions.

1. The alleles **HLA-DRB1*17(03)** and **HLA-DRB1*04** are more common in TBE patients in Latvian population.
2. The allele **HLA-DRB1*07** was significantly higher in healthy persons.
3. In patients with TBE meningoencephalitis frequently detected allele **HLA-DRB1*17(03)**.