**Association of HLA polymorphisms with juvenile idiopathic arthritis in Eastern Croatian population**

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**Introduction.** Juvenile idiopathic arthritis (JIA), as other autoimmune conditions, is characterized by both genetic and environmental factors implicated in the etiopathogenesis of disease. Previous studies identified genes in HLA complex as the most substantial genetic component of risk. The objective of our study was to analyse HLA-A, -B, -DRB1 and -DQB1 allele frequencies, as well as HLA haplotype frequencies in a group of Eastern Croatian children affected with JIA and compare them to healthy Croatian population. **Methods and Materials.** A total of 42 unrelated patients (14 males, 28 females) were HLA typed at low-resolution level using PCR-SSP technique in the period of 2009-2014. The control group consisted of 210 previously typed healthy unrelated individuals. The HLA haplotypes of the JIA cohort were reconstructed using maximum likelihood - expectation maximization algorithm. Single and multilocus associations were estimated using two-tailed Fisher's exact test and odds ratios (Woolf-Haldane method). **Results.** When comparing HLA-A, -B, -DRB1 and -DQB1 allelic frequencies between control group and patients no significant differences (P<0.05) were detected. In contrast, A\*02-B\*35 (7.35% vs 2.4%, OR=3.25, 95% CI:1.08-9.74, P=0.044), A\*68-B\*35 (5.88% vs 0.0%, OR=58.67, 95% CI:3.14-970, P=0.00035) and A\*02-B\*18 haplotypes (5.88% vs 0.0%, OR=58.67, 95% CI:3.14-970, P=0.00035) were positively associated with JIA. **Conclusion.** Further studies with larger cohort, stratification in regard to JIA subtypes and high-resolution typing are required for precise assessment of HLA alleles and haplotypes in JIA susceptibility.