Inflammation and clinical immunology

0078

Polymorphism and expression of IFN-g and TNF-α encoding genes in children with recurrent respiratory tract infections

Aleksandra Lewandowicz-Uszyńska[1], Gerard Pasterak[1], Małgorzata Kamińska[2], Katarzyna Bogunia-kubic[2]
[1]Medical University of Wrocław, 3rd Department and Clinic of Paediatrics, Immunology and Rheumatology of Developmental Age , Wroclaw, Poland
[2]Hirszfeld Institute of Immunology and Experimental Therapy, Polish Academy of Sciences, 3 Laboratory of Clinical Immunogenetics and Pharmacogenetics , Wrocław, Poland

The aim of the study was to evaluate serum concentrations of IFN-g and TNF-α and polymorphisms of genes coding for these cytokines in children with recurrent respiratory tract infection (RRTI).

The study included 91 children: Group I: 34 patients with RRTI (with low IgE levels and normal Vitamin D concentration); Group II: 18 patients with allergy (with higher IgE levels), Group III: 22 patients with RRTI and vitamin D deficiency; Group IV: 20 healthy children (control group). The following analyses were performed: measurements of IgE, IgD, IFN-g, TNF-α serum levels; CD3+, CD4+, CD8+, CD19+, CD56+ blood lymphocytes phenotyping; assessment of *IFNG* (rs2430561; +874 T/A) and *TNFA* (rs1800629; -308 G/A) alleles using LightSNiP Assays.

All patients characterized with normal IgA, IgG, IgM serum levels.

The lowest numbers of CD3+, CD4+ or CD8+ lymphocytes were detected in II and III Group.

Group II (IgE dependent allergy) and Group III (vitamin D deficiency) patients presented with the lowest IFN-g serum levels although these differences did not reach statistical significance.

In all analyzed groups *IFNG* polymorphism was found to be significantly associated with IFN-g serum levels. Higher median serum levels were observed in RRTI AA homozygous patients (23.298 vs 14617, p=0.018). Among patients with allergy or vitamin D deficiency those with the A allele presented with higher IFN-g serum levels (15.919 vs 5.275, p=0.013 and 12.508 vs 4.98, p=0.041, for Group II and III patients, respectively).

No statistically significant differences were observed with respect to TNF-α concentrations or distribution of *TNFA* genotypes in the examined children.

These results imply that the lower IFN-g levels (associated with *IFNG* genotypes) could be one of the factors related to recurrent respiratory tract infections and thus affecting dysfunction of innate immune response.

Figure 1

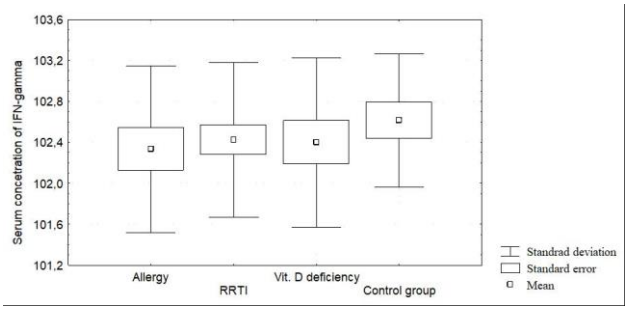

Figure 2

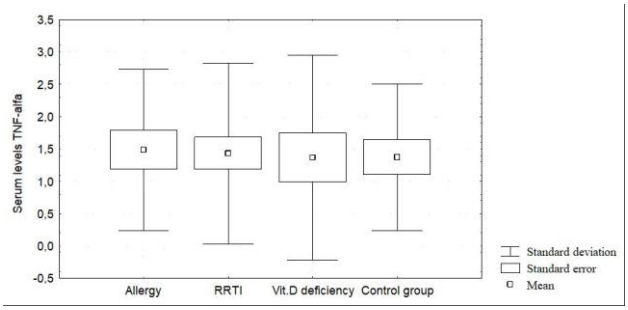

Figure 3

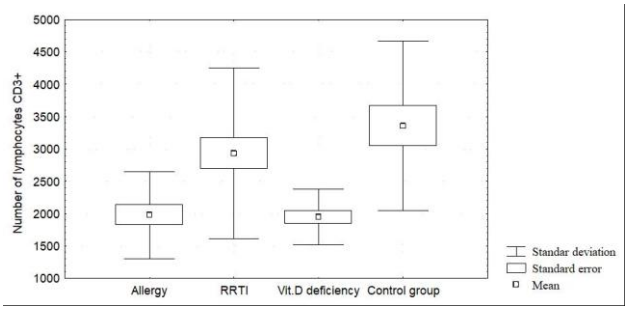

Figure 4