

Method of evaluating a severity of atopic dermatitis using serum eotaxin level in children

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Atopic dermatitis (AD) is a chronic inflammatory skin disease affecting up to 20% of children, the prevalence of which continues to increase. At the heart of the clinical manifestation of AD is allergic skin inflammation. In clinical practice at the present days, the activity of allergic inflammation is evaluated not only with the level of eosinophils, but also with the concentrations of cytokines and mediators associated with eosinophilic inflammation – such as leukotrienes, interleukins, eosinophilic cationic protein. In this regard, it is important to study the levels of eotaxin as a marker of severity and prognosis of allergic inflammation.

The objective of the study is to determine the relationship between eotaxin levels and clinical and paraclinical AD rates.

Materials and methods. The study tested 60 children aged from 60 days to 3 years with clinical manifestations of AD in the exacerbation period of the disease (main group) and 36 healthy children (control group).

Results. In the analysis using the normal section, depending on the severity of AD, no reliable relationship was established between the level of eotaxin and the parameters under study. The eotaxin levels were evaluated depending on the severity of AD. The median and interquartile intervals for mild (32.10 [16.05–41.86] pg/ml), medium (33.5 [27.9–80.94] pg/ml) and severe (25.11 [18.14–54.42] pg/ml) the stage of AD. Statistical analysis of the values of eotaxin levels in the groups and with the reference values (46.05 [27.9–61.4] pg/ml) revealed no significant differences. Therefore, another approach was chosen: sick children were divided into 2 groups – with low and high levels of eotaxin. Statistical analysis revealed that eotaxin values ranged from 2.79 pg/ml to 189.78 pg/ml. The median and interquartile intervals were respectively 30.7 [19.54–50.2] pg/ml. Therefore, the high eotaxin group was 18 children with indicators (50.2–189.78) pg/ml and the low eotaxin group was 16 children with indicators (2.79–19.54) pg/ml. A statistical analysis of the main features that characterize AD was performed. In the high eotaxin group, scores on the SCORAD, total morphological manifestations, erythema, lichenization, excoriation, skin dryness, and subjective sleep and itching were significantly higher.

Conclusions. Serum eotaxin levels in infants are likely to correlate with AD severity – Indicators of overall SCORAD, total morphological intensity, erythema, lichenization, excoriation, itching, and sleep disorders. Serum eotaxin levels can be used as an objective marker of the severity of acute phase AD in infants.

Characteristics of immune status in children with cystic fibrosis

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Introduction. Cystic Fibrosis (CF) is one of the most common hereditary diseases with variety of clinical manifestation depending on difference of CFTR gene mutations and comorbid states.

Objective. To improve medical care for patients with CF by the definition of immune status features.

Materials and methods. The research was conducted in the Pulmonology department of the Kharkiv Regional Clinical Children's Hospital No. 1 in 2015–2018. Examinations of patient with CF were carried out according to the Order of Ministry of Healthcare of Ukraine of July, 152016 No. 723 «On approval of the unified clinical protocol of primary, secondary (specialized) and tertiary (highly specialized) medical care «Cystic fibrosis». Investigation of immune status was carried out by the standard methods. Mathematical processing of the results was carried out using the IBM SPSS23. The study was conducted according to human rights and ethical norms.

Results. The study was performed on 47 children with CF aged 0–17 years 11 months 29 days and 54 healthy children as control group in Kharkiv region. The CF diagnosis was based on clinical and paraclinical characteristics and positive results of pilocarpine test. It was found that for the Kharkiv region CF diagnosis median age was 8.0 (3.0; 24.0) months. The CFTR gene mutations were detected in 76.2% of children. Seven CFTR gene mutations were found: delF508–81.2%, N1303K, S1196X, del21kb, 711+1G>A, Ratio132,721, Arg334Trp, W1282X-3, 1%. 28.5% patients have chronic *Pseudomonas aeruginosa* infection. Elevated levels of the CD3, CD16, CD25, phagocytosis of latex, circulating immune complexes, spontaneous nitroblue tetrazolium test, spontaneous index of activated neutrophils test, IgM and decrease levels of the leukocytes, neutrophils, CD4, CD8, stimulated nitroblue tetrazolium test, lysosomal cationic proteins, IgA were found during the study of immune status in children with CF in comparison with a control group ($p < 0.05$).

Conclusions. The immune status features in children with CF were determined.

Comparative analysis of components investigation of patients with allergic respiratory pathology in different regions of Ukraine

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Introduction. The prevalence of allergic diseases is increasing worldwide every year. The causes include ecological and climate changes, regional features of lifestyle and nutrition, migration of population. The conducting of molecular allergic diagnostics and assessment of molecular profile of allergic patients provide the opportunity for personalized approach to specific allergen immunotherapy.

The **objective** was to investigate the features of molecular profile of patients with allergic diseases in West Ukraine and to compare them with prevalence of respiratory allergens components in whole Ukraine.

Materials and methods. An investigation group included 263 patients with allergic pathology (West Ukraine) aged 25,2±9,5; 52,0% female and 48,0% male. The data of component examination of 1500 patients were analyzed. The investigation groups were comparable with age and gender. The specific component investigation ALEX were performed.

Results and discussion. The increased level of total IgE were detected in 63,4% residents of West Ukraine; 68,7% – whole Ukraine. The patients with polysensitization were (62,5% / 65,4%) respectively. The most common sources of respiratory allergens in West Ukraine were cereals, house dust mites, spring trees, and, respectively, protein groups – Expansin, NPC2, PR-10. Among components in West Ukraine in comparison