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CLINICAL ANALYSIS OF MORPHO-PHYSIOLOGICAL CHANGES IN IMMUNE ORGANS AFTER DISEASE IN CHILDREN

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✓ ***Resume***

In recent years, there has been an increase in the number of children who become ill frequently and over a long period of time. Pediatric infectious diseases, according to modern research, cause respiratory illnesses in preschool children in organized groups more often than 4 times a year. These processes are directly related to the immune status of the organism, and this scientific article provides information on the presence of morphological changes in immune organs during the course of the disease.

Keywords: Immunocompotent system, immunological reaction, immunosuppression, immunoglobulin

КЛИНИЧЕСКИЙ АНАЛИЗ МОРФОФИЗИОЛОГИЧЕСКИХ ИЗМЕНЕНИЙ ИММУННЫХ ОРГАНОВ У ДЕТЕЙ ПОСЛЕ ПЕРЕНЕСЕННЫХ ЗАБОЛЕВАНИЙ

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✓ ***Резюме***

В последние годы увеличилось количество детей, которые болеют часто и в течение длительного периода времени. Детские инфекционные заболевания, согласно современным исследованиям, вызывают респираторные заболевания у детей дошкольного возраста в организованных группах чаще, чем 4 раза в год. Эти процессы напрямую связаны с иммунным статусом организма, и в данной научной статье представлена информация о наличии морфологических изменений в иммунных органах в ходе заболевания.

Ключевые слова: Иммунокомпонентная система, иммунологическая реакция, иммуносупрессия, иммуноглабулин

БОЛАЛАРДА КАСАЛЛИКДАН КЕЙИН ИММУН АЪЗОЛАРДАГИ МОРФО-ФИЗИОЛОГИК ЎЗГАРИШЛАРНИНГ КЛИНИК ТАҲЛИЛИ

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✓ ***Резюме***

Сўнгги йилларда тез-тез ва узоқ давр мобайнида касал бўлган болалар сонининг кўпайиши кузатилмоқда. Болалар юқумли касалликлари, замонавий тадқиқот маълумотларига кўра, нафас йўллари касалликлари, уюшган гуруҳлардаги мактабгача ёшдаги болаларни йилига 4 мартадан кўпроқ тез-тез касал бўлишига сабаб бўлмоқда. Бу жараёнлар организимнинг immune ҳолати билан бевосита боглиқ ҳисобланади, касаллик даврида иммун азоларда морфологик ўзгаришлар бўлиши бўйча ушбу илмий мақолада маълумот келтирилади.

Калит сўзлар: Иммунокомпотент система, иммунологик реакция, иммуносупрессия, иммуноглобулин

Introduction

However, in practice, this group includes patients suffering from recurrent and chronic infectious and inflammatory diseases of various localization [2]. With the exclusion of exogenous risk factors and the absence of a pronounced effect from hardening and restorative procedures, special hopes are pinned on modern pharmacological immunocorrection [3].

Scientific research in recent years, conducted by infectious disease specialists, immunologists and pediatricians, is devoted to the search for a differentiated approach to the prescription of immunomodulatory drugs. [1,10] It is known that the basis for the appointment of immunomodulatory therapy are the disorders identified during a comprehensive clinical and immunological examination [6-8]. At the same time, there are no clearly developed recommendations and programs for the treatment of secondary immunodeficiencies in children.

Purpose of the work to study the features of immunological disorders in frequently and long-term ill children, to assess the role of the premorbid background in the formation of immunopathological conditions, to study the role of immune disorders in the formation of pyoinflammatory diseases of various localization and to develop a differentiated approach to immunocorrection.

Materials and methods

The study included 179 children (79 girls and 100 boys) aged 18 months to 14 years. All patients had more than 4 episodes of respiratory or pyoinflammatory diseases per year. Comparison group - 100 healthy children. Immunological examination was carried out on the basis of the Bukhara Regional Center of Pediatrics. The following methods of immunological research were used: determination of the concentrations of serum immunoglobulins A, M, G by the Mancini method, determination of the content of CD4 and CD8 lymphocytes using monoclonal antibodies (MCA set "Status" NPO "Preparation", N.-Novgorod), determination of the function of neutrophil granulocytes for complete phagocytosis in the test with nitro blue tetrazole, spontaneous and induced (NBT). Clinical examination was carried out using generally accepted methods. Anamnestic data were collected using a specially designed questionnaire.

Results and its discussion

Clinical heterogeneity of frequently and long-term ill children (CHDBD) was established, in connection with which 4 groups of patients were identified. The first group (86 people) included children with recurrent inflammatory diseases of the bronchopulmonary system. 19 of them (22%) had relapses of obstructive bronchitis for more than 3 episodes per year in combination with a history of pneumonia. Repeated pneumonia, more than 3, occurred in 16 patients (18.6%), recurrent bronchitis - in 51 patients (59.3%). Exacerbations of diseases in children of the first group were associated with the addition of a viral and bacterial infection. The second group (42 patients) consisted of children with recurrent pyoinflammatory diseases of the upper respiratory tract. In this group, there were: recurrent otitis media - in 13 people (30.9%), repeated sinusitis - in 9 (21.4%), repeated tonsillitis - in 8 (19%), combined pathology (mainly rhinosinusitis and otitis media) - in 12 (28.6%). The third group (21 people) consisted of children with repeated (mainly staphylococcal etiology) pyoderma. Among them, children with recurrent boils prevailed - 8 people (38.1%), combinations of barley and boils were found in 5 people (23.8%), staphylostreptoderma in combination with boils - in 5 (23.8%). The fourth group (30 people) included patients with frequent respiratory viral infections 4 to 10 times a year.

A comparative assessment of obstetric risk factors, the incidence of background diseases, as well as a comparative assessment of immunological parameters in different groups was carried out. As a result, the predominant role of such factors as preeclampsia of pregnancy, intrauterine fetal malnutrition, the threat of termination of pregnancy and miscarriages in history, somatic pathology of the mother, in the formation of recurrent infectious and inflammatory diseases was revealed. An unfavorable premorbid background (rickets, anemia, allergic dermatitis, early artificial feeding) is found with a high frequency.

The analysis of the peculiarities of immunological changes in the selected groups of NPV was carried out. Signs of immunological imbalance were detected in 79 children (91.8%) of the 1st group. In 58 people (73.4%), violations of the humoral link of immunity were found, among which a decrease in the IgA level to 0.32 + 0.12 g / l prevailed in 42 patients (53.2%), including isolated IgA deficiency - in 14 (17.7%), in combination with a decrease with a decrease in IgG - in 13 (16.5%) and with a decrease in IgM - in 10 (12.7%). A decrease in the IgG level to 5.2 + 2.0 g / l was observed in 31 children (39.2%). Violations of the cellular link of immunity were found in 35 patients (40.7%) and were manifested by a decrease in CD3 in 17 people (21.5%) to 47 ± 2.5% and CD4 in 10 people (12.7%) to 34.8 + 2.2%, as well as a decrease in CD8 in 19 children (24.1%) to 9.2 + 1.8%. A decrease in spontaneous and induced phagocytic activity according to the NBT test was observed in 20 patients (25.3%). In the first group, there were also combined lesions of the humoral and cellular systems of immunity - in 13 (16.5%), humoral immunity and phagocytosis - in 13 (16.5%) people.

In the second group, signs of immunological deficiency were found in 34 people (80.9%). They were manifested by humoral disorders in 26 children (76.5%) in the form of inhibition of IgG production up to 6.09 + 1.35 g / l in 21 people (61.8%), IgM up to 0.51 + 0.13 g / l in 10 people (29.4%), IgA up to 0.29 + 0.12 g / l in 17 people (50%). In the same group, changes in cellular immunity were found in 12 people (34.3%): a decrease in CD3 in 6 children (17.6%) to 48 ± 2.7%, CD8 in 4 children (11.8%) to 7, 6 ± 1.7%. The NBT test was reduced in 7 people (20.6%): spontaneous - up to 3.25 + 0.75% and induced - up to 25.1 ± 3.9%.

In the third group, violations of immunological parameters were found in 19 people (90.5%). Including violations of humoral immunity in 14 children (73.7%) and cellular - in 7 (36.8%). This was manifested by a decrease in IgA - in 6 (31.6%) to 0.44 + 0.08 g / l, IgM in 6 people (31.6%) to 0.56 + 0.08 g / l, IgG in 8 (42.1%) up to 5.2 ± 0.9 g / l, CD3 in 5 (26.3%) up to 49 ± + 1.5%, CD8 in 6 children (31.6%) up to 8 + 2 %.

In the fourth group, a decrease in humoral, cellular immunity and phagocytosis was observed in 15 people (50%), and the level of IgA was reduced in 4 people (26.7%) to 0.58 + 0.01 g / l, IgM - in 1 child up to 0.45 g / l, IgA - in 3 children (20%) up to 7.6 + 0.08 g / l and CD8 in 4 patients (26.7%) up to 9.29 + 1.75%. Disorder of the phagocytic link prevailed in this group in 8 people (53.3%) in the form of a decrease in spontaneous phagocytic activity to 3.8 + 0.8%.

Of all the immunomodulatory drugs officially registered in Russia, the most promising and targeted for the effect on the immune system in BDBD are polyvalent bacterial vaccines (bacterial lysates, bacterial ribosomes with membrane fractions), which have a vaccine and immunomodulatory effect [3, 8, 9]. However, a number of studies have shown that the effectiveness of these drugs is lower in chronic and recurrent infectious and inflammatory processes than in frequent acute respiratory viral infections [3].

Taking into account these features and on the basis of data obtained during immunological studies in various groups of NPD, we have proposed a differentiated approach to immunotherapy in this category of patients. In group 1 of patients, replacement therapy with immunoglobulins (mainly KIP-complex immune drug) was used, and in case of combined changes in the immunogram, lycopid or polyoxidonium was prescribed, followed by the use of bacterial polyvalent vaccines (bronchomunal, ribomunil). In patients of group 2, normal human immunoglobulin was used, as well as drugs that stimulate phagocytosis; in the second course, the same patients were prescribed polyvalent bacterial vaccines, mainly of local action (IRS19, imudon). In patients of group 3, it was expedient to prescribe anti-staphylococcal immunoglobulin, followed by the use of a monovalent therapeutic vaccine (staphylococcal antifagin). In group 4, drugs stimulating phagocytosis and herbal adaptogens were prescribed.

The effectiveness of differentiated immunocorrective therapy in a frequently ill child

Group	The main group, p = 45	Control group, p = 22	Validity of differences , p
Sign	7,5 ± 1,8	6,7 ± 1,3	> 0,05
The incidence of diseases per year before treatment	2,9 ± 1,3	3,5 ± 0,9	< 0,05
The incidence of diseases per year after treatment	12,6 ± 2,4	10,3 ± 4,1	< 0,05
Average duration of one episode of illness before treatment (days)	7,4 ± 1,6	7,3 ± 2,0	> 0,05
Average duration of one episode of illness after treatment	35,6 ± 11,9	26,1 ± 7,9	< 0,05
Duration of antibiotic therapy before treatment (days per year)	12,1 ± 4,4	14,2 ± 5,3	< 0,05

The effectiveness of treatment according to a differentiated scheme was assessed according to the following parameters: the frequency of diseases per year, the average duration of one episode of the disease (or exacerbation), the total number of days of antibiotic therapy during the year before and after treatment. Evaluation of the effectiveness of immunotherapy was carried out in 45 patients, the comparison group included 22 children who received therapy only with polyvalent bacterial vaccines.

Conclusions

The NPR category is clinically and immunologically heterogeneous and includes 4 groups of patients (with recurrent bronchopulmonary diseases, with recurrent ENT pathology, with recurrent pyoderma, with frequent respiratory viral infections).

1. In the selected groups found immunological heterogeneity: a predominant decrease in IgA, IgG and impaired cellular immunity in recurrent bronchopulmonary diseases; a combination of a decrease in humoral immunity and phagocytic protection in ENT pathology; violation of the production of immunoglobulins with pyoderma; decrease in the activity of phagocytosis with frequent respiratory viral infections.

2. The revealed immunological changes allow a differentiated approach to the prescription of immunocorrective therapy, which prevents the risk of polypharmacy and iatrogeny and makes it possible to increase the effectiveness of the use of therapeutic vaccines, depending on the clinical manifestations of the disease. factors of perinatal risk and postnatal distress can be the harbingers of the development of immunological deficiency and contribute to the occurrence of recurrent inflammatory diseases.

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