ISSN 2181-1008
DOI 10.26739/2181-1008

ЖУРНАЛ

гепато-гастроэнтерологических исследований

Ежеквартальный научно-практический журнал

№3.2 (том II) 2021

ISSN 2181-1008 (Online)

Научно-практический журнал
Издается с 2020 года
Выходит 1 раз в квартал

Журнал зарегистрирован в Узбекском агентстве по печати и информации

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JOURNAL OF HEPATO-GASTROENTEROLOGY RESEARCH
ЖУРНАЛ ГЕПАТО-ГАСТРОЭНТЕРОЛОГИЧЕСКИХ ИССЛЕДОВАНИЙ

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FEATURES OF ACUTE RESPIRATORY VIRAL INFECTIONS IN YOUNG CHILDREN WITH ATOPIC DERMATITIS

ABSTRACT

Atopic dermatitis (AD) is a very common disease in children. According to epidemiological studies, in different countries atopic dermatitis affects from 10 to 20% of children. The aim of the study was to define predisposing factors to the development of AD in children, to follow up the prevalence of some objective signs of this disease, and to study the peculiarities of the course of acute respiratory viral infections (ARI) in children with AD. In work the data of objective research of 80 children at the age of 1-7 years old with objective signs of AD (group 1) attached to the polyclinic ¹ 3 of Andijan were used. Andijan, and also the retrospective analysis of their ambulatory cards was carried out. For the comparison group, 25 healthy children 1-7 years old (group 2) with no objective signs of abnormal constitution were selected and their ambulatory cards were retrospectively analyzed. As a result, children with ADs contracted acute respiratory infections for the first time in their lives much earlier than children in the control group. The average duration of illness in the first group is 17 days versus 8 days, respectively. The incidence of acute laryngotracheitis, acute bronchitis, pneumonia, and acute sinusitis is significantly higher than in Group II. The prescription of antiviral, antibacterial, and physiotherapy was also more frequent in children with this constitutional abnormality than in Group II.

In AD the concordance of immunologic and metabolic disorders, apart from joint immunity lowering, also increases the risk of anaphylactic reactions and hyperergic course of inflammation, acute respiratory infections appear at much earlier age, get complicated more often, which leads to prolongation of terms of illness, appearance of complications requiring bactericidal therapy and physiotherapy.

Key words: constitutional anomalies, atopic dermatitis, acute respiratory viral infections

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ОСОБЕННОСТИ ОСТРЫХ ДЫХАТЕЛЬНЫХ ВИРУСНЫХ ИНФЕКЦИЙ У ДЕТЕЙ С АТОПИЧЕСКИМ ДЕРМАТИТОМ

АННОТАЦИЯ

Атопический дерматит (АД) - очень распространенное заболевание у детей. Согласно эпидемиологическим исследованиям, в разных странах атопическим дерматитом страдают от 10 до 20% детей. Целью исследования было определение предрасполагающих факторов к развитию БА у детей, проследить распространенность некоторых объективных признаков этого заболевания, а также изучить особенности течения ОРВИ. В работе использованы данные объективного исследования 80 детей в возрасте 1-7 лет с признаками БА (1 группа), прикрепленных к поликлинике № 3 г. Андижана, а также проведен ретроспективный анализ их амбулаторных карт. В группу сравнения были отобраны 25 здоровых детей 1-7 лет (группа 2) без объективных признаков аномального телосложения и ретроспективно проанализированы их амбулаторные карты. Установлено, что дети с БА впервые в жизни заболели острыми респираторными инфекциями намного раньше, чем дети контрольной группы. Средняя продолжительность болезни в первой группе составляет 17 дней против 8 дней в контрольной группе, соответственно. Заболеваемость острым ларинготрахеитом, острым бронхитом, пневмонией и острым синуситом значительно выше, чем во II группе. Назначение противовирусных, антибактериальных и физиотерапевтических средств у детей с данной конституциональной аномалией также чаще, чем во II группе.

Довольно часто встречается такое конституциональное отклонение, как АД. Его развитию предрасполагают аллергические заболевания у родственников, патология беременности и родов. При БА сочетание иммунологических и метаболических нарушений, помимо снижения иммунитета, также увеличивается риск анафилактических реакций и гиперергического течения воспаления, ОРЗ возникают в гораздо более раннем возрасте и чаще осложняются, что приводит к увеличению сроков лечения болезни, появлению осложнений, требующих бактерицидной терапии и физиотерапии.

Ключевые слова: конституциональные аномалии, атопический дерматит, ОРВИ.

Atopic dermatitis (AD) is the most common inflammatory skin disease in children and occupies the leading place in the structure of allergic diseases [1,2,16]. According to epidemiological studies in different countries AD affects from 10 to 28% of children [3,5,7,9]. The prevalence of AD and acute respiratory infections is the most common in childhood [2,8,9]. Their share together with influenza is at least 70% in the structure of all morbidity in children, with the highest incidence rate observed in children attending children's educational institutions [4,3,10,11]. In recent years, compared with the previous decade, there has been a 30-40% increase in the number of AD patients. Until recently, AD was thought to be a genetically determined predisposition to IgE synthesis in response to low doses of allergens and was detected by increasing levels of total and/or specific IgE in blood serum, as well as by positive skin testing with exoallergens [6,9,11]. According to current literature data, a quarter of patients with this pathology have no sensitization to environmental allergens and have low levels of serum IgE, i.e., no evidence for an IgE-mediated immune response mechanism [2,7,11,12,15]. Immune abnormalities in AD are currently being discussed and the search continues for the best diagnostic criteria for detecting AD in children with normal and elevated serum total IgE levels, as well as with positive and negative allergen-specific IgE values [5,8,14]. Thus, the study of predisposing factors of AD is an urgent problem of the present time and requires further study. The aim of investigation was to determine predisposing factors to AD in children, to follow up prevalence of some objective signs of this disease, to study peculiarities of acute respiratory viral infections (ARI) course in children with AD in comparison with those without this disease, to consider the opportunities of individual prevention of ARI in AD. Materials and methods of research. The data of objective research of 80 children at the age of 1-7 years old with objective symptoms of AD (group 1) assigned to the policlinic ¹ 3 of Andijan were used in the work. Andijan, and also the retrospective analysis of their ambulatory cards was carried out. For the comparison group, 25 healthy children 1-7 years old (group 2) that had no objective signs of abnormal constitution were selected and their ambulatory cards were retrospectively analyzed.

Results and discussion. Acute respiratory tract infections are caused by various viruses, transmission is characterized by airborne droplets. ARI is characterized by high morbidity in Uzbekistan: 20 thousand cases per 100 thousand people. According to WHO, 2.5-4 million severe cases of influenza and 20-300 thousand deaths as a result of influenza infection are registered in the world every year. On average, children can fall ill from 4 to 8 times a year, and those who attend educational institutions up to 10 times [3,13,14].

Table 1

Treatment for influenza / ARVI in children's age groups per 100 thousand population in 3 cities of Uzbekistan

Age(years)	Epidemiological seasons (years)			
	2017-18	2018-19	2019-20	2020
0-2	27,4	32,4	40,	41,2
3-4	34,5	28,6	36,9	46,5
5-7	28,5	20,2	15,4	22,7

Increased incidence of the disease in children is noted in the cold season, during the off-season and under the influence of stressful situations. ARI is characterized by an extremely easy mechanism of transmission, high intensity of the epidemic process, the mass nature of the disease and high variability of viruses, which requires both individual and mass prevention. But personal prophylaxis does not work identically: some patients really get infected less often, while in other patients the frequency and duration of diseases does not change significantly, regardless of the measures taken. Because of this, a specific concept was introduced: children with recurrent infections (CRIs) [13]. Recurrent infections are defined as children according to the infection index (II), defined as the ratio of the sum of all cases of acute respiratory diseases (ARI) during the year to the patient's age. The index ranges from 1.1 to 3.5 for PDRs and from 0.2 to 0.3 for occasional sufferers. Currently, there are five groups of PDD that differ significantly in their own characteristics [3,16]: Five groups of PDD are distinguished according to predisposing mechanisms: Group 1. It includes patients with predominant allergies and allergic pathology in anamnesis, both maternal and paternal. Group 2. Patients with mostly neurological pathology.

Group 3. Patients with primary hereditary vascular dystonias.

Group 4. Patients with a predominant loss of lymphatic system from birth.

Group 5. Patients with predominant metabolic-constitutional abnormalities.

As we can see, this classification is mainly based on diathesis - extreme, borderline with pathological variants of the constitution. The concept of diathesis is essential for pediatrics. Numerous evidences of the dependence of the state of health and psychomotor development of children on the presence of certain constitutional abnormalities made the teaching of diathesis an important part of pediatric medicine [9, 12]. The introduction into clinical practice of such terms as "exudative diathesis," "childhood eczema," "neurodermatitis," and others has often complicated the formulation of such terms. Often complicates the formulation of the results of scientific examinations and the implementation of diagnostic and therapeutic benchmarks. In addition, the substitution of clinical diagnosis with similar terms to an appropriate extent predetermines the carrying out of unreasonable and inadequate help to the patient. AD is based on chronic allergic skin inflammation. It is no coincidence that the infant's skin becomes the "target organ" of the allergic reaction in AD. The skin proper (dermis) and subcutaneous fat in infants is a concentration of cells involved in the recognition, presentation of antigens, and effector response to them. Numerous papers have shown a variety of changes in immunological reactivity in the peripheral blood of patients with AD. Basically, in children and adults diagnosed with atopic dermatitis, various authors have revealed a decrease in the total number of T-lymphocytes, the absolute number of CD8+ (T-cytotoxic). According to various researchers, the relative and absolute numbers of CD4+ (T-helpers) and B-24-lymphocytes (CD20+) in patients with AD vary: their number may increase as well as decrease. According to the literature, children with elevated levels of total IgE have significantly lower CD4+ than children with normal levels of total IgE. The SCORAD index is inversely proportional to the CD4+/CD8+ ratio [15 According to the literature, children with AD often show multidirectional dynamics of antibodyogenesis indices, consisting both in a decrease of IgG, IgM, and IgA levels and in their increase [15]. According to different authors, the dynamics of the indices reflecting the state of the complement system mostly coincide. Both in children and in adult patients with AD, the content of complement components decreases. The results of the study of the functional activity of leukocytes in children with AD by different authors coincide. A decrease in phagocytic activity of neutrophils, phagocytic index, and NCT-test values was observed in children with AD. Predominance of Th2 activity in children with AD is accompanied by high levels of IL-4, IL-5 and general blood IgE. At the same time, a decrease in IFN - y production is noted. Thus, the data available in the literature on the dynamics of general and local immunoreactivity indices in patients with AD are contradictory. The search for the most optimal clinical and immunological differential diagnostic criteria of AD with different values of total and allergen-specific IgE continues. It will allow to deepen representation about pathogenetic mechanisms of AD development, age peculiarities of clinical manifestations, variants of course and reasons of AD different forms exacerbation in children and teenagers and to improve treatment and rehabilitation measures at this disease. AD is characterized by polymorphism of rash. In typical cases the disease has a characteristic clinical picture and clear criteria for diagnosis. However, symptoms and morphological signs of skin lesions typical of atopic dermatitis in the form of erythema, papular and papulo-vesicular elements, dryness, peeling, cracking, excoriations, infiltration and lichenification of the skin can occur in other skin diseases, and also be manifestations of a variety of metabolic, neoplastic and immunodeficiency conditions. The combination of immunological and metabolic disorders allow us to determine in such children in addition to a general decrease in immunity, also an increased risk of anaphylactic reactions and hyperergic course of inflammation, which is reflected in the nature and spectrum of pathological conditions and the course of psychomotor development To assess the features of development and nature of the course of ARVI, 80 children aged 1-7 years with objective signs of AD (group 1), assigned to the polyclinic № 3 of Andijan were examined. Andijan, and a retrospective analysis of their outpatient records was carried out. For the comparison group, 25 normosthenic children 1-7 years old (group 2) who had no objective signs of constitutional abnormalities were selected, and their outpatient records were retrospectively analyzed. One of the important questions is what predisposes to the formation of AD. In the course of the study, interviews with mothers and analysis of outpatient records identified the most frequent pathologies of the antenatal and intrapartum periods in children with this type of diathesis (Table 2).

Table 2

The frequency of pathologies of the antenatal and intrapartum period in children with blood pressure (group I) and children (group II)

Pathologies	Group I	Group II
Hereditary burden of allergic diseases	95%	9%
Risk of termination of pregnancy	69%	23%
Toxicosis of pregnancy	84%	36%
Disorders of the mother's diet (consumption of obligate allergens, large amounts of animal protein and small amounts of vegetable carbohydrates)	97%	54%
Complications during childbirth (hypoxia, operative labor, prolonged and rapid labor)	72%	32%
High birth weight (> 4000 g)	80%	5%

Thus, Table 2 shows that hereditary peculiarity for allergic diseases [20] in the group of children with AD was observed in 96% of cases while in Group II in 10%. Pregnancy abnormalities in the form of threat of termination, toxicosis were present significantly more often in the mothers whose children had an abnormal constitution. The complicated course of childbirth occurred in 74% of cases in group 1, which was more than 2 times higher than in group II children. Heavy birth weight was present in 82% of the children in Group I and only 4% in Group II.

After determining the predisposing factors to the formation of AD, the question of the frequency of objective signs of this anomaly draws attention. Cutaneous manifestations of AD were noted in 100% of cases in the first group of children (48% had them during objective examination, and according to retrospective analysis of medical records, 100% of children in this group had from 1 to 6 episodes of atopic dermatitis or urticaria a year). In the second group of children, no skin manifestations were found either objectively or retrospectively.

Catarrhal pharyngeal mucosa, adenoid overgrowths, and enlargement of peripheral lymph nodes (mainly submandibular and cervical) were noted more frequently in the first group compared to the second.

After analyzing the severity of clinical signs of AD on the basis of retrospective analysis of outpatient records, the peculiarities of the course of acute respiratory infections in children of Group I as compared to Group II were noted. These data are summarized in Table 4. This table shows that children with AD fall ill with acute respiratory infections for the first time in their lives much earlier than children in the control group. The average duration of illness in the first group is 17 days versus 8 days, respectively. Frequency of acute laryngotracheitis, acute bronchitis, pneumonia, and acute sinusitis was significantly higher than in Group II. There was also a more frequent prescription of antiviral, antibacterial, and physical therapy in children with this constitutional anomaly than in Group II.

Conclusion. This constitutional abnormality, as AD, is encountered quite frequently. Allergic diseases in guardians, pregnancy and childbirth pathology predispose to its development. Among the objective symptoms of AD are always present skin manifestations in the form of eczema, seborrhea, dermatitis, urticaria. Due to the fact that in AD the immunological and metabolic disorders are hoped, not counting the joint decrease in immunity, and increased risk of anaphylactic reactions and hyperergic course of inflammation, acute respiratory infections occur at a much younger age, more often complicated, which leads to prolongation of the disease, complications that require bactericidal therapy and physical therapy. For example, as frequently ill children AD refer to the 1st group of frequently ill children, in correcting the immune protection of these children, special care should be given to the formation of rational eating habits and optimization of life.

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