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Clinical current of an atopic dermatitis at children of Yakutsk living in different ecological conditions

Golikova O. A.¹, Romantsova E.B.², Babtseva A.F.², Prihodko O.B.²

The atopic dermatitis in modern conditions is a serious medical and social problem that is caused by its prevalence, a chronic relapsing current, possibility of formation of early physical inability, is in most cases accompanied by psychosomatic disturbances and characterized by depression of quality of life.

Keywords: an atopic dermatitis, children, a bionomics, adaptation

Introduction. The atopic dermatitis (BP) is one of the most widespread allergic diseases among children, keeping clinical signs on an extent of many years and sharply reducing quality of life of the sick child and his family [4]. The atopic dermatitis in modern conditions is a serious medical and social problem that is caused by its prevalence, a chronic relapsing current, possibility of formation of early physical inability, is in most cases accompanied by psychosomatic disturbances and characterized by depression of quality of life.

Research objective. To study features of a current of an atopic dermatitis at children Yakutia, living in different ecological conditions.

Materials and research methods.

The clinical current of a BP at children has been studied on the basis of OB Republican hospital №1 - the National Center of Medicine of Yakutsk.

In allergology and immunology unit complex investigation of 155 children from a BP at the age from 1 month till 18 years, from them girls 65(42%), boys 90(58%) is carried. Comparison group have made 30 children comparable on age, sex who didn't have allergic diseases.

Considering the data of annual monitoring about a state of environment [2] and division into districts indicators on V.J. Soldatovoj [3], 3 groups of children living on the given territories (districts) on degree of impurity of environment have been defined. I group - 41 child, living in territory of intensive ecological trouble, II group – average intensity of ecological pollution – 51 child and III group – 63 children living in district of weak ecological pollution.

In work the kliniko-anamnestic method is used, adaptic possibilities, levels of reactance [1], the computer program "Antistress", statistical processing under the program «STATISTICA 6.0» are studied.

Results and discussion. Distribution of quantity of children with an atopic dermatitis on classification offered RAACI (the Russian association of allergists and clinical immunologists,

2002 is spent). Among observable children of 32,9% were with the infantile form of a BP (at the age of 0-2 years), 54,8% - from a nursery (3-12 years), 12,3% - with teenage (13-18 years), that is, the most part of patients was at the age of 3-12 years.

Gender differences with prevalence of a BP among boys (58%) were at infantile (23,2%) and a nursery (27,7%) illness forms, among girls (42%) the children's form (27,1%), then infantile (9,7%) and teenage (5,2%) prevailed.

The current of pregnancy and sorts at mothers of children from the BP living in different ecological conditions (table 1) is analysed.

Table 1

Features of a current of pregnancy at mothers of children from the BP living in different ecological conditions

Complications of a current of pregnancy	Children from a BP (n=155)		
	I district (n=41)	II district (n=51)	III district (n=63)
Early toxicosis	33 (80,5±6,1)*	39(76,4±5,9)	38(60,0±6,1)
Nephropathy	19 (46,3±5,9)	21(41,1±6,8)	30(31,7±5,8)
Threat of an abortion	28 (68,2±7,2)*	37(72,5±6,2)***	24(38,1±6,1)
Anemia during pregnancy	35 (85,3±5,5)	38(74,5±6,1)	52(82,5±4,7)
Chronic pyelonephritis (exacerbation)	26 (63,4±7,5)*	28(54,9±6,9)***	18(28,5±5,6)
Acute respiratory disease during pregnancy	26 (63,4±7,5)*	10(19,6±5,5)**	5(7,9±3,4)
Smoking of mother during pregnancy	8(19,5±6,1)	11(21,5±5,7)	10(15,8±4,5)
Abusing mother alimentary allergens	10(24,3±6,7)*	10(19,6±5,5)	8(12,7±4,2)
Reception of medicines during pregnancy	38(92,6±4,2)*	40(78,4±5,7)***	39(61,9±7,8)
Cesarean section	11(26,8±6,9)	10(19,6±5,5)	17(26,9±5,5)
Hypoxia of a fetus	27(65,8±7,6)*	20(48,7±6,9)	20(31,7±5,8)
Cerebral ischemia	26(63,4±7,5)*	31(60,7±6,8)***	10(15,9±4,5)

*p<0,05 (at comparison of indicators 1 and 3 districts)

** p <0,05 (at comparison 1 and 2 districts)

*** p<0,05 (at comparison 2 and 3 districts)

Among the complicated current of pregnancy in investigated groups of mothers having children from a BP, prevailed: a toxicosis, an anemia, abortion threat, reception of medicinal preparations during pregnancy, a fetus hypoxia, a cerebral ischemia. Between districts have taped authentic differences on frequency of development of an early toxicosis, threat of an abortion, an exacerbation of a chronic pyelonephritis, OP3 during pregnancy, reception of medicines during pregnancy among women of 1 and 2 districts in comparison with 3 district ($p < 0,05$) that was reflected on fetus and newborn health.

So, at mothers of 1 district more often, than in 3 district, it was observed a fetus hypoxia, ($p < 0,05$), frequency of a cerebral ischemia among newborns 1 and 2 districts authentically differed from 3 districts ($p < 0,05$), that is, in ecologically adverse conditions pregnancy is accompanied by its more frequent complications influencing a fetation and health of the newborn (tab. 1).

Among sick children depending on a clinical picture of a lesion of a skin, it agree working classification have allocated kliniko-morphological forms of a BP. The exudative lesion of a skin met at children till 2 years 21 (13,6 %) is more often. It was characterized by an acute inflammation of a skin with an enanthesis of papules and microvesicles with the expressed exudation and an exzema. Localization mainly on the person, an anticnemion, hips. A locating of rashes the symmetric.

Eritemato-squamous lesion of a skin diagnosed at 85 (54,8 %) children which was shown by a hyperemia of cheeks, large cords, papular rashes, an ecdysis, excoriations, at a part of children of is serous-hemorrhagic crusts with primary localization on a face skin, necks, breeches, sometimes on flexor surfaces of extremities, hips, anticnemions, more often for children at the age of 3-12 years. Eritematoskvamoznye changes with lichenization have been taped at 31 (20 %) the child. Dermal pathological process settled down in the field of ulnar and popliteal folds is more often, in the field of radiocarpal and ankle joints, dorsums of brushes and has been presented eritematoskvamoznye by the centers, lichenoid papules and plaques with the expressed infiltration and also cracks, excoriations on a skin of children.

The lichenoid variant isn'ted in 11(4.5%) cases. On a dry skin the dense lichenoid and pruriginous papules of various size merging among themselves with formation of the large centers were observed, settling down on a skin of a neck, ulnar folds, forearms and brushes of arms, popliteal folds, hips and anticnemions, lichenoid and excoriations.

For this variant of a current of a BP it was characteristic: a hyperpegmentation of periorbital area, eyelids with the underlined cords of Dene-Morgana, the general dryness and an ecdysis of perioral area. In the presence of an accompanying respiratory allergy at patients except dermal implications, the itch of eyelids or difficulty of breath becomes perceptible a nose. From above

told follows that as a whole in BP structure the exudative variant of a lesion of a skin more often at the age of 0-2 years (13,6%), is erythematic-squamous and is erythematic-squamous with lichenization at children of 3-12 years (74,8%), lichenoid at teenagers (4,5%) prevails. At 51% of children dependence of gravity of a current of dermal process on a season, more often in winter - an autumn season is taped. 7,7% of children from a BP haven'ted an all-the-year-round exacerbation of dermal process.

Table 2

The periods of illness at observable children from a BP depending on ecological conditions of residing

Current phases	Ecological territory			All (n=155)
	I district (n=41)	II district (n=51)	III district (n=63)	
Acute	19(46,3±7,8)*	12(23,5±7,1)	5(7,9±3,3)	36(23,2±11,4)
Subacute	20(48,8±7,8) *	37(72,6±6,2)	55(87,3±4,2)	112(72,3±11,5)
Remission	2(4,9±3,3)	2(3,9±1,0)	3(4,8±2,6)	7(4,5±1,6)

*p<0,05 (at comparison 1 and 3 districts)

At the analysis of gravity of a current of disease at children depending on ecological conditions of residing, have taped that the acute current of a BP is observed in 5,9 times more often at children living in adverse ecological conditions, in comparison with children, living in satisfactory conditions (tab. 2). A subacute clinical course became perceptible at 112(72,3%) children, and more often at children living in 2 and 3 districts (p<0,05).

Table 3

Gravity of a current of a BP at children depending on residing district

Gravity of a current	I district (n=41)	II district (n=51)	III district (n=63)
Easy	7(4,5±1,7)*	26(16,8±3,0)	43(27,7±3,6)
Moderate severity level	11(7,1±2,0)	22(14,1±2,8)	19(12,2±2,6)
Serious	23(14,8±2,8)*	1(0,6±0,4)	1(0,6±0,4)

*p <0,05 (at comparison of the data of 1 district with 2 and 3)

It is taped that the serious current of disease in 14,8% of cases met in ecologically adverse district whereas the easy current became perceptible in more favorable. The moderate severity level current of a BP almost equally met in 2 and 3 districts of more safe on an ecological background.

Gravity of a current of a BP, frequency of its exacerbations are influenced by an accompanying pathology.

The following pathology of a gastroenteric tract among children from a BP is taped: the dysbacteriosis 82 (52,9 %), a lamblasis of an intestine 40 (25,8 %), an enterobiosis 4 (2,6 %), gastritis at 36 (23,2 %) school age, duodenitis reflux is taped at 10 (6,4 %), a reflux an esophagitis at 6 (3,9 %), a chronic hepatitis B in at 9(5,8%), and at 7(4,5%) children from a BP are diagnosed together a lesion gastroduodenal and liver systems, an intestine, a pancreas.

Dyspepsias of an obscure etiology in the period of the early childhood it is taped at 29(34,1%) children, constipations at children about one year 38(71,7%), an unstable chair at 43(27,7%), frequent regurgitations and vomiting for the first time months of life at 62(40%) children. At studying of complaints, abdominal pains were shown by half of sick children. At the general survey at 23(14,8%) the imposed "geographical" tongue became perceptible. At 15(9,7%) children were taped lesions of a mucosa of an oral cavity in the form of a cheilitis, caries at 89 (57,4%). At a palpation of a stomach at 54(34,8%) children morbidity in epigastric and pancreas areas, augmentation of a liver at 12(7,7%) children became perceptible.

At ultrasonic research of organs of an abdominal cavity at children, it has been taped, anomalies of development of a gall bladder: a S-shaped gall bladder – at 3(1,9%), bubble excesses – 12(7,7%); a dyskinesia of cholic ways – at 34(21,9%) children, inspissation of walls of a gall bladder – 15(9,7%), intensifying of a vascular drawing of a liver and a hepatomegalia at 12(7,7%), augmentation of the sizes of a pancreas at 4(2,6%).

Adaptive possibilities of an organism defined at children with various gravity of a current and the disease period, depending on ecological conditions of residing. Using the hematological data under the computer program "Antistress", have defined types of the adaptic reactions, allowing to judge protectively-adaptive possibilities of an organism.

At patients observed by us in the acute period of a BP pathological reactions of adaptation (the stress, reactivation) aren'ted at 49,0%, reaction of training which, according to L.H. Garkavi testifies to insufficiency of adaptic mechanisms – at 16%. At patients with the infantile form reactivation reaction in comparison with children of advanced age was more often observed.

Antistressornye reactions (the raised and quiet activation) at a BP exacerbation were observed at 35 % (fig. 1). In remission of a BP at children activation reactions over prevailed in 1,5 times.

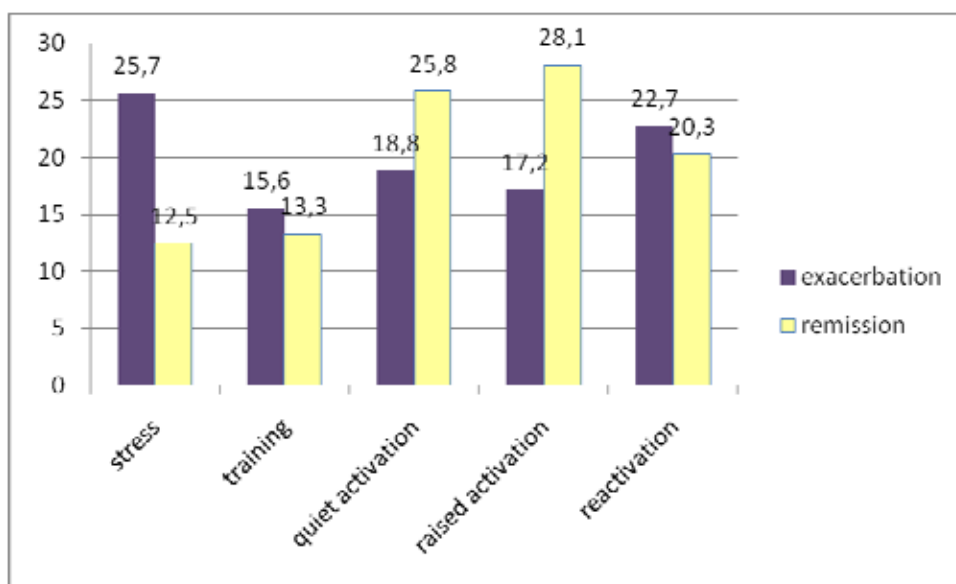


Fig. 1. Adaptive reactions at patients depending on the period of a BP, (%).

It is necessary to notice that in BP remission all five types of adaptive reactions are observed, thus most the failure isn'ted at patients with pathological reactions of stress, reactivation and the trainings observed at 38,2 % of patients. As a whole, in remission stressful reactions were observed at 34 % of children, i.e. their frequency has decreased in 1,4 times in comparison with the acute period. Activation reactions have made 53%, their frequency has raised in 1,5 times in comparison with a disease exacerbation (fig. 1).

Despite prevalence physiological antistress adaptive reactions in the acute and regenerative periods at sick BP the big frequency of low level of reactance is taped. Among patients with the infantile form low level of reactance has made 48,1%, from a nursery - 63,6%, with teenage – 50,1%. Remaining low level of reactance at the period of an exacerbation of illness at the infantile form is noticed at 29,4% of patients, at the children's form at 28%, and at the teenage form at 34,8% that reflects depression of adaptive possibilities of sick BP owing to what the regenerative period is tightened for longer terms.

On character of adaptive reactions: the quiet adaptation, the raised activation, reactivation, training, stress) and to reactance level estimated an adaptation condition as satisfactory (adaptive reaction of the quiet activation, the raised activation), a strain, an overstrain (adaptive reactions of training, reactivation) (unsatisfactory), dysfunctions (adaptive reactions of stress).

At an estimation of indicators of a condition of adaptation at sick BP it is taped that at the infantile form the condition of satisfactory adaptation meets more often in 1,5 times, in comparison with the teenage form. And, on the contrary, the sick BP are more senior, the low level (in 1,7 times) adaptation conditions, characteristic for an overstrain and a decompensation is more often becomes perceptible.

Table 4

Condition of adaptation as reactions and levels of reactance at sick BP depending on residing at different ecological conditions, (%)

Condition of adaptation	I district (n=41)	II district (n=51)	III district (n=63)
Satisfactory	1(2,4)	9(17,7)	21(33,3)
Strains	12(29,3)	14(27,5)	22(34,9)
Unsatisfactory	28(68,3)	28(54,9)	20(31,7)

Researches have shown that at children with unsatisfactory adaptation weighting of a current of a BP was observed. So, at children adapted for stress, the lung and moderate severity level a BP current (accordingly 38,7% and 3,7%) while at children with an unsatisfactory condition of adaptation prevailed, or moderate severity level (57,4%), or serious (88,5%) a disease current took place only. We haven'ted at the patients who have been not adapted for the condition in comparison with adapted children, the big frequency accompanying both allergic, and not allergic pathology, including neurologic and somatic ($p<0,05$).

Analyzing a condition of adaptation of patients depending on residing at different ecological conditions, have noticed that in the most polluted district there is an unsatisfactory condition is more often.

At comparison of a condition of adaptation at children from the BP living in different zones of ecological well-being have taped the following (tab. 4).

In a zone of intensive ecological trouble in 13,8 times satisfactory reaction of adaptation less often becomes perceptible, in 2,2 times unsatisfactory reaction was more often observed.

Thus, there are age features of a current of a BP for children and teenagers not only at its exacerbation, but also in the remission period that is bound to the taped changes in a condition of mechanisms of adaptation, in turn, being under regulating influence of vegetative nervous system.

Table 5

Condition of adaptive possibilities at children from a BP depending on gravity of disease and district of residing, (%)

Gravity of a BP	satisfactory	strains	unsatisfactory
I district			
Easy n=6	1(16,7%)	2(33,3)	3(50,0)
Average n=11	-	7(63,6)	4(36,4)
Serious n=14	-	3(12,5)	21(87,5)

II district			
Easy n=26	9(34,6)	8(30,8)	9(34,6)
Average n=24	-	6(25,0)	18(75,0)
Serious n=1	-	-	1(100)
III district			
Easy n=43	19(44,2)	14(32,5)	10(23,3)
Average n=19	2(10,5)	8(42,1)	9(47,4)
Serious n=1	-	-	1(100)

From table 5, follows that the satisfactory condition of adaptation becomes perceptible more often at easy severity level of a BP and basically at children living in 3 district, i.e. in ecologically more favorable conditions. The unsatisfactory condition of adaptation, on the contrary, becomes perceptible at a serious current of a BP and at children living in 1 district, i.e. in ecologically adverse conditions is more often.

The conclusion. Thus, the carried investigation of children with an atopic dermatitis has taped that, the greatest quantity of children of suffering BP meets in the children's period (3-12 years), is slightly more rare – the infantile form and is even more rare - the teenage form. The BP is clinically aggravated at children with an unsatisfactory condition of the adaptive possibilities living in adverse ecological conditions that it is necessary to consider at carrying out of treatment-and-prophylactic actions.

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Golikova Oksana Afanasevna – the doctor of higher category, the allergist-immunologist, unit of allergology and immunology of GU ПБ №1- The national center of medicine Yakutsk, oagolikova@mail.ru, 89142372734.

Babatseva Albina Fedorovna – d.m.s., the professor, managing chair of children's illnesses. The Amur state medical academy AGMA, Blagoveshchensk.

Romantsova Elena Borisovna – d.m.s., managing chair of pediatrics. The Amur state medical academy, Blagoveshchensk. 89145502802.



Prihodko Olga Borisovna – c.m.s., the assistant to chair of hospital therapy. The Amur state medical academy, Blagoveshchensk.