The characteristics of pancreatic and hepatic status of children with allergic diseases and dermatorespiratory syndrome

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The penetration of allergens into the body can be carried out by inhalation, parenterally, and through the gastrointestinal tract. [3] One of the factors that greatly facilitate the development of allergic diseases is reactive, dyskinetic and enzymatic disorder of the gastrointestinal tract [5]. Detoxification of allergens also depends on the function of the liver as the primary organ of the barrier [1].

It is known that the close anatomical and physiological relationship between hepatobiliary pancreatic and gastroduodenal zone promotes combined lesions of these organs. There is no doubt that early diagnosis of the liver and pancreas diseases and timely targeted therapy will help. In some cases, it'll prevent functional disorders chronization, in others – stop the progression of the inflammatory process in the pancreas and liver. [5]

The ideal model of allergic disease treatment depends on the clinical form, severity and stage of the disease, involves the use of conventional drugs of international standards (antihistamines, corticosteroids (inhaled, topical, systemic) adsorbents membrane-stabilizators inhibitors, leukotriene drugs, β2-agonists and short- and long-acting, methylxanthines, and only in the period of remission the use of specific alergovaccination (immunotherapy) with reasonable allergen is possible. Thiotriazolin has anti-inflammatory, membrane-stabilizing, antioxidant, antiradical, cardio and hepatoprotective properties and helps to improve micro-and macrogemodynamics, normalizes the function of the main intracellular messengers, correcting metabolic processes. Thiotriazolin combines the properties of several syndromes and symptomatic medications. On the other hand, thiotriazolin is effective for ventilational and tissue hypoxia, that is, it eliminates the manifestations of respiratory failure at the tissue level as well as reducing bronchial obstruction. The property to save cells energetic reserve ensures the effectiveness of the combination of an allergic tiatriazolin and concomitant cardiac and hepatobiliary disease [6].

Materials and methods

For the realization of our goals there were 175 children (93 boys and 82 girls) between the ages of 3 to 18 years with allergic disease under our supervision. A study group included 100 children (56 boys and 44 girls). Among them, bronchial asthma (BA) was

observed at 44 children (44%), atopic dermatitis (AD) - 41 (41%) with allergic conjunctivitis (AA) - 15 patients (15%). Thiotriazolin was included into the complex treatment of those children. The control group consisted of 75 children (37 boys and 38 girls), whose combined therapy did not include thiotriazolin. In the control group there were 30 children (42.86%) of BA, 30 children (42.86%) of BP, 15 (20%) children with AA under control.

The clinical picture of diseases in both the main and the control group was compared in severity and period of the process with an equal distribution of the observation group. Indeed, among all children with asthma 28 children (37.8%) had dermatorespiratorny syndrome. Medium-severe asthma was observed among 77% of patients, severe - in 10.8% of the cases, mild - in 9.46%. 7 children with asthma had dermorespiratory syndrome and widespread cutaneous process, 21 had it localized. Patients with AD had a localized form of the disease in 39.4% of cases, widespread - in 60.8%. All children underwent a comprehensive survey, which took into account complaints, medical history and clinical findings, laboratory and imaging studies, assessment of the dynamics of the treatment. The levels of lipase and amylase in the blood diastase in the urine, feces scatological study were defined. All patients had a biochemical blood test (levels of alanine and aspartate aminotransferase were measured, thymol, total protein and its fractions, the level of bilirubin and cholesterol). The levels of total IgE in the serum by PRIST. Echographic study of abdominal organs (pancreas, liver and gall bladder) was performed before and after the treatment. In the complex treatment of children in the main group, we used thiotriazolin and duration of treatment was 4 weeks. The results were processed with conventional statistical methods using the program Excel [2, 7].

Results and Discussion

The distribution of children groups according to the main clinical forms and age is shown in Table. 1.

Table 1

The distribution of children according to the clinical form of the disease and age

Diagnosis	Basic Group						Control Group					
	BA n=44		AD n=41		AK n=15		BA n=30		AD n=30		AK n=15	
Age	Abs.	%	Abs.	%	Abs.	%	Abs.	%	Abs.	%	Abs.	%
3–5	6	13,64	14	34,15	1	6,67	3	10	11	36,67	1	6,7
6–9	12	27,27	8	19,5	2	13,33	10	33,3	4	13,33	2	13,3
10–12	13	29,55	7	17,1	4	26,67	8	26,67	4	13,33	3	20
13–15	7	15,9	8	19,51	4	26,67	5	16,67	6	20	2	13,3
16–18	6	13,64	4	9,76	4	26,67	4	13,33	5	16,67	2	13,3

According to the results of the study children often suffered from asthma and blood pressure than AA ($p < 0.001$). AD prevailed in the structure of nosology among the children 3 to 5 years, and the BA and AA were most often recorded among children older than 5 years.

The analysis of anamnestic data among the children with allergic diseases found that 116 patients (66.28%) had abdominal pain syndrome, and in 49.7% of cases the pain was paroxysmal in nature and more often not associated with eating. There was bad appetite and a tendency to constipation. 10% of children had cyclic vomiting syndrome with acetonemic crises. A deeper examination of children with abdominal pain syndrome was conducted. The ultrasound revealed changes of the pancreas and biliary tract disease among all children, but the extent of their expression was different. So, 46.55% of patients showed an increase in the size of the gall bladder due to its length (up to 7- 10 cm according to age).

The gall bladder of anomaly form was observed among 83.6% of children, and its S-shaped form - at 8.6%, kinks at the bottom of the body or neck at 62.93% and the S-shaped neck - in 5.17% of cases. 31.9% of patients had biliary dyskinesia. 10.3% of children over 10 years old had thickening of the gallbladder wall (more than 3 mm), which was regarded by us with the clinical symptoms as signs of chronic cholecystitis. It is noted that these changes of gallbladder do not affect the condition of the hepatic parenchyma, which has no visible signs of the changes in all children tested.

Sonographic signs of changes in the pancreas were found among 21.55% of children. Its diffuse increase at constant parenchyma was observed in 86.2% of cases (up to the head region 16- 23 mm body - 20 to 14 mm, a tail - 28 to 20 mm, depending on age). Only 18.97% of patients the size in the region of the head and body was within age norms, and its increase was noted only in the tail. Diffuse enlargement of the pancreatic parenchyma due to edema occurred in 7.8% of cases. Lots of seal parenchyma were observed in 9.5% of the cases and were mainly observed among the children at the older age groups.

51.7% of the patients had sealing of the vessel wall in the parenchyma of the pancreas, and often in the tail, at least in the body and the head.

Individual analysis of anamnestic histories and outpatients showed that changes in the pancreas in the form of increase in various parts of the body at a constant parenchyma were identified from the first years of life and were most shown among patients with a common form of AD.

"Stagnant" gallbladder and its various strains were also determined from the first years of life of these children, the seal or thickening of its walls was observed among patients with a prolonged course of the disease. More obvious changes in the pancreas in the form of its diffuse increase due to swelling of the parenchyma, or the availability of parts in it seals were less common and more frequently observed among patients with dermorespiratory syndrome combined with cyclic vomiting syndrome.

It should be noted that the figures revealed changes of the pancreas with ultrasound directly correlated with the degree of sensitization and multivalency (total IgE levels ranged from 110 to 2500 kU / L), and disease duration of up to 5-7 years. It is possible that functional disorders of the digestive system with age are moving into organic, ie, there is a tendency to chronicity of the process (10.3% of the children of older age groups had signs of chronic cholecystitis, 3.4% of chronic pancreatitis) [5]. The detected changes of the pancreas among children with allergic diseases are often accompanied by soreness not accepted at Mayo-Robson, Chauffard zone, the left upper quadrant, which is typical for patients with pancreatitis. Morbidity was detected only at the point of the gall bladder; there were also signs of the constipation or dyspeptic symptoms presence.

The study of blood diastases and urine amylase, liver function tests did not reveal any abnormalities in the patients examined. Only scatological study showed a slight change in the presence of feces in the form of undigested fiber, starch I, II degree, iodophilic fibers.

The detected changes of the pancreas and the liver may be regarded, first, as a result of the general reaction to the impact of various axoallergen, with changes in the sonographic examination godsend, and no clinical manifestations of gastro-intestinal tract [3]. Secondly, under the direct effects of allergens (in particular, food, fungal, etc.) pancreas acts as a shock organ. In the latter case echographic data recorded not only its increase, but also a characteristic change of parenchyma described above. In clinical terms, these patients always had changes in coprogram, transient increase in urine diastase to the upper limit of normal.

Concidering the pathogenic mechanisms underlying the destruction of the pancreas among children with allergic diseases, especially dermorespiratory syndrome, treatment guidelines were limited as to the conduct of common allergy events and the appointment of tools that eliminate the associated dysfunction of the pancreas, gallbladder, liver, correction acetonemic states.

Diet therapy was prescribed with the exception of obligate allergens purines. Patients were treated according to protocols [3, 4, 5, 6]. In the complex treatment of children in the main group, thiotriazolin, with antioxidant, membrane-stabilizing, anti-inflammatory, immunomodulatory, hepatoprotective action were given[2]. Thiotriazolin normalizes

choleopoiesis and detoxifies liver function, has a membrane-stabilizing action. It was administered at a dose of 10mg/kg 3 times a day for 4 weeks.

It was used in the treatment of edema acetonemic syndrome (intravenously). Also in remission cause-specific immunotherapy with significant allergens was performed. According to the symptoms cholagogue therapy was prescribed (allohol, flamin, tyubazhi) and enzyme preparations.

For example, children with asthma received a recommended Thiotriazoline tablet form in dosages of age; children with AD thiotriazolin took it orally, and used tiotriazolinovuyu ointment for external use on the affected skin; 1% eye drops of thiotriazoline was used in AK.

On the background of a comprehensive treatment the patients had the clinical manifestation of the disease, which was accompanied by the lowest values of total IgE (74 - 940 kU / L) significantly reduced or eliminated. Reactive manifestation among all patients during the treatment for the past two weeks disappeared. The main positive effects of using thiotriazoline among children are shown in Table. 2.

Table 2

The distribution of positive effects of thiotriazoline used with children

Diagnosis	The main group			The control group		
	BA n=44	**AD** n=41	**AK** n=15	**BA** n=30	**AD** n=30	**AK** n=15
The effects	Abs./%	Abs./%	Abs./%	Abs./%	Abs./%	Abs./%
Visual flow relief on day 2-3	41/93,2"	38/92,7*	12/80?	16/53,3	13/43,3	7/46,7
Absence of complaints for day 2-3	39/88,6"	37/90,2*	12/80?	13/43,3	11/36,7	5/33,3
Normalization of well-being and objective conditions on day 5	44/100"	39/95,1*	15/100?	12/40,0	14/46,7	8/53,3
Remission after 7 days	44/100"	41/100*	15/100?	19/63,3	18/60,0	9/60,0

It is established that the use of thiotriazoline for the treatment of allergic diseases among the children in the main group managed to achieve faster relief of acute flow by 2-3 day, they had no complaints by 2-3 day, by the 5th day they returned to normal health objective condition, within 7 days they achieved remission. In the main group liver enzymes returned to normal by day 5 among 92% of children (compared to 35.7% of the comparison group), Rφ <0.05.

The onset of clinical and laboratory efficacy thiotriazoline had a direct correlation with the fact of being ($r = +0,4$, $p < 0.05$), and the frequency of background states of a child ($r = +0,6$, $p < 0.05$), and a reverse correlation with the starting date ($r = 0,5$, $p < 0.05$) and duration of therapy started ($r = 0,6$, $p < 0.05$). The treatment of all children was well tolerated, without any side effects and adverse events when using Thiotriazoline.

The presented results of our observations indicate the validity of the inclusion of thiotriazoline into the complex therapy of allergic diseases of children.

Conclusions

1. 66% of children with allergic diseases had the gastrointestinal tract involved into the pathological process.

2. The detected changes of the pancreas and liver among patients with allergic conditions are reversible and can be treated as reactive changes.

3. For the treatment of reactive changes of the liver and pancreas of children with allergic diseases there should be combined therapy with the mandatory inclusion of drugs with membrane stabilizing and antioxidant action (thiotriazolin) used.

4. With the related cyclic vomiting with acetonemic syndrome which developed among children with allergic diseases, therapy should include thiotriazolin.