CORRECTION OF PANCREATIC INSUFFICIENCY IN CHILDREN WITH ATOPIC DERMATITIS

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ABSTRACT

Atopic dermatitis has a prominent position in the structure of childhood skin diseases (ranging from 20 to 50 percent of patients with dermatosis), which motivates paediatricians and family physicians to increase the disease's care performance. Skin symptoms and severity are often related to gastrointestinal disease, affecting 52 percent of atopic dermatitis patients.

The article examined the results of clinical and laboratory markers of relative pancreatic insufficiency. According to them, it was identified in 69.7% of patients, which required the appointment of enzyme preparations. These drugs have a high safety profile, which allows them to be used even from the neonatal period. The results also showed that in most (92.5%) patients, correction of exocrine dysfunctions to a certain extent affects the regression of cutaneous manifestations. But the elucidation of the mechanisms of such influence requires separate special studies.

Keywords: Atopic Dermatitis, Sick Children, IgE Measurement, Pancreatic Insufficiency, Elastase.

I. INTRODUCTION

According to official data, in the world, there is not only a steady increase in the incidence of allergic diseases in children but also a "rejuvenation" of allergic pathology in every fourth-fifth child [5,7,8,15]. The first place among allergic dermatoses in children is occupied by atopic dermatitis (AD), which is characterized by a genetically determined chronic inflammatory immunopathological disease of the skin (based on which in most cases there are foci of IgE), itching, relapse, age-related clinical-morphological features, as well as the typical onset of the disease in early childhood. The basis of AD etiopathogenesis is the mixed occurrence of triggers such as food allergies, stress-induced states, changes by microbiota, changes in the microecology of the environment, anatomic-physiologic predisposition of the child's organism [2,4,6,11]. In addition, for all allergic pathologies, including AD, the development of simultaneous pathological changes in many organs and systems is characteristic. The timely correction of this pathology is of interest to allergologists-doctors and other narrow specialists, such as otolaryngologists, gastroenterologists, and endocrinologists [3,9,12,14].

Functional disorders in the digestive system lead to an increase in the absorption of food components, especially proteins, which are not fully decomposed. Therefore, the body is more susceptible to various allergens. The penetration of antigens from the intestine in a large stream causes the functional activity of the pancreas [13,14].

Clinical manifestations of pancreatic insufficiency (PI) in children are characterized by abdominal pain, changes in appetite (decrease or complete loss), nausea, air-thawing, abdominal gurgling, meteorism, flatulence, unstable stools.

The coprological examination is the most common method of detecting PI since it has not yet lost its relevance and is non-invasive and easy to use. Currently, the gold standard of PI diagnosis includes detecting pancreatic
elastase-1 in faeces, which reaches the distal parts of the intestine at an unchanged level. Its norm content in the faeces is higher than 200 mcg/ml, and the decrease from it indicates PI. The test results do not affect the patient's nutrition, the intake of enzymes of the pancreas [7,12]. However, a decrease in the amount of faecal elastase-1 determines a severe and moderately severe PI, and this condition is poorly observed in childhood. Therefore, this method can not be excluded auxiliary methods (coprogramma or best faeces lipidogram) that determine the exocrine function of the pancreas since only this method allows to assess the adequacy of substitution therapy and choose the amount of the drug from the practice of [9].

The article aims to evaluate the effectiveness of the enzyme preparation mezym forte 10 000 in the form of micro tablets in the correction of PI in children with AD.

Criteria for inclusion of patients in the study are age range from 3 years to 6 years and confirmation of the diagnosis of AD and PI. The criteria for exclusion were the presence of hypersensitivity to enzyme preparations in the Anamnesis and the presence of acute diseases that can affect the results in the course of the study.

II. MATERIALS AND METHODS

We controlled 3-6 children with skin syndrome in the form of AD at the age of 40. Signs of allergic skin lesions include erythema, papular-macular elements, a polymorphic rash with lichenoid papules, the presence of traces of itching and itching. In addition to the clinical examination, an ultrasound of the pancreas and abdominal cavity organs was performed to determine the level of IgE in the blood serum, coprogram (at the beginning and end of the control) gastric gland elastase.

In addition to AD therapy, Mezymforte 10 000 was ordered in order to correct exocrine insufficiency of the pancreas in all observed children. Its daily volume was calculated by lipase (1000 B lipase per 1 kg of body weight of a child); that is, by 1 kg of body weight per 2 microtablets per day, it was divided by the number of meals. The drug was administered during each meal (3-4 times a day) for two weeks.

In the criteria for choosing the adequate amount and duration of the drug, it was included the normalization of the number and character of the arrival of faeces, the loss of neural fat in the Coprogram, betterment of appetite, the loss of dyspeptic and pain syndromes.

The effectiveness of enzyme therapy was studied based on the results of an evaluation and coprological examination of the degree of convergence of the main clinical symptoms of digestive disorders (abdominal pain, decreased appetite, meteorism, violation of the arrival of faeces, nausea).

III. RESULTS

The study group consisted of 3 to 6 years of age 40, 19 of them (47,5 %) were boys, and 21 (52,5 %) were girls. According to the duration of the disease, children were divided into up to 1-3 years – 22 (55%), more than three years – 18 (45%).

All children were admitted to the hospital during the incomplete remission period of previously confirmed AD: erythematous-squamous form was observed in 10 (25%) cases, erythematous-squamous form with lichenification – 19 (47,5%), lichenoid – 11 (27,5%) cases. In 30 (75%) of the patients, the pathological process was limited, 9 (22.5 %) of the patients were diffused, and 1 (2.5 %) had diffuse character. In the study group, the average severe course of the ad was convincingly superior; in 29 (72.5 %) patients, 3-4 times relapses were observed per year.

Easy comorbidity of the disease – 9, severe – 2 (respectively 22.5 and 5%) were observed in patients. According to the collected anamnesis, frequent relapse of the disease was associated with the focus of infection, gastrointestinal symptoms, and non-compliance with a hypoallergenic diet. It was observed that there was an increase of the total IgE value in serum to an average of 980.5 HB/ml in all patients who came to the hospital.

Among all the gastroenterological complaints observed in patients, we distinguished those that are characteristic of PI: pain in the subcutaneous area of the left rib, which has a different degree of intensity, nausea, burping, meteorism, a decrease in appetite, an increase in the number of faeces coming from pieces of food that are not digested (Table 1).
Clinical symptoms of PI in children with AD (n=40)

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain in the abdominal area</td>
<td>40 (100%)</td>
</tr>
<tr>
<td>Nausea</td>
<td>22 (55%)</td>
</tr>
<tr>
<td>Burping</td>
<td>21 (52.5%)</td>
</tr>
<tr>
<td>Meteorism</td>
<td>19 (47.5)</td>
</tr>
<tr>
<td>Decreased appetite</td>
<td>29 (72.5%)</td>
</tr>
<tr>
<td>Fecal impaction</td>
<td>23 (57.5%)</td>
</tr>
<tr>
<td>Insufficient body mass</td>
<td>12 (30%)</td>
</tr>
</tbody>
</table>

In the study, the pain was observed in the points of pancreas projection (Meyo-Robsona, Kacha, Kerte) in all patients (100%).

In the coprological examination, the first type of steatorrhea (presence of neural fat in the faeces) was detected in 35 (87.5%) children, creatorrhea – 8 (20%), non-digestible fiber – 31 (77.5%), amylorrhea – 34 (85%), decrease in the value of elastase – 31 (77.5%) children (Table 2).

Clinical symptoms were evaluated every day and one time per week after discharge from the hospital, both after verifying clinical diagnosis and after the enzymatic drug Mezymforte 10 000 was prescribed (Table 2). The coprological examination was conducted on the 7th and 14th day of treatment. As indicated in Table 2, the incidence of abdominal pain syndrome in children decreased by 2.1 times by the 7th day of treatment. By the 14th day, it disturbed only 2 children (r < 0.01). There was also positive dynamics in the reduction of dyspeptic symptoms. It decreased in both meteorism and stagnant faeces convincingly after week 1 of treatment (r<0.05), and by the end of treatment and left in almost all children (r < 0.01).

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Until treatment</th>
<th>Third day</th>
<th>Seventh-day</th>
<th>Fourteenth-day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>abc.</td>
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</tr>
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<td>13</td>
<td>32.5</td>
</tr>
<tr>
<td>Meteorism</td>
<td>19</td>
<td>47.5</td>
<td>16</td>
<td>40</td>
</tr>
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<td>57.5</td>
<td>19</td>
<td>47.5</td>
</tr>
</tbody>
</table>

The loss of neutral fat in a coprological examination is a marker of the effectiveness of enzymatic treatment conducted. It should be noted that steatorrhea was left in 16 (40%) children on the 7th day of treatment with Mezym forte. And on the second weeks of treatment, it was left in almost all of the patients. Reduction of elastase in faeces normalized in 15 patients by the seventh days of the disease. On 14 days of treatment, it remained in one patient 2.5 times less than the norm. It is evidenced by the adequate selection of the amount of the enzyme drug and its high activity (jad.3).
Against the background of complex treatment with Mezymforte 10 000, parallel to the regression of abdominal, dyspeptic and coprological syndromes, a positive dynamics of the manifestation of symptoms caused by the skin was observed: the area of injury, hyperemia and infiltration, itching decreased. Significant improvement in skin syndrome was observed in 72.5% of children, an average improvement in 20.0%, 7.5% of patients did not have any effect on the measures taken, which requires a more in-depth study of the causes supporting the pathological process.

The use of the enzyme drug Mezymforte 10 000 in treating patients with AD has contributed to the disappearance of pain and dyspeptic syndromes, the improvement of laboratory indicators that determine the functional state of the pancreas and the decrease in the main clinical symptoms of AD.

IV. DISCUSSION

The results of our study showed that changes in coproprogram had been detected in almost all patients. It confirms the mixed nature of the pancreatic lesion in AD. As a result of the study, clinical and laboratory signs of PI were identified in patients, which required the appointment of enzyme preparations. Many studies have shown the high efficacy of micro tablets enzyme therapy in treating PI in children [1,9,12]. The results obtained showed that in most patients, the correction of a violation of the exocrine function of the pancreas to some extent affects the regression of skin symptoms. However, the explanation of such effects requires special research. Improvement of skin syndrome has not been observed in 7.5% of patients after enzyme therapy. It requires a deeper search to identify the causes that support the pathological process.

V. CONCLUSION

1. The drug Mezymforte 10 000 leads to positive dynamics of PI in children by eliminating dyspeptic and pain syndromes and is an effective tool in the treatment of PI in children with AD.

2. Mezymforte is well consumed by patients, does not have side effects and differs from other drugs with ease of use: from 1 kg of body weight to 2 microtablets per day, divided by the number of meals.

3. It is recommended to conduct a two-week course of treatment with Mezymforte 10000 to correct PI in children with AD.

CONFLICT OF INTERESTS AND CONTRIBUTION OF AUTHORS

The authors declare the absence of apparent and potential conflicts of interest related to this article's publication and report on each author's contribution.

SOURCE OF FINANCING

No funding was required for this research.

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