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MODERN DIAGNOSIS AND TREATMENT OF ALLERGIC RHINITIS IN CHILDREN

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ABSTRACT

Subcutaneous (SCIT) and sublingual (SLIT) immunotherapy methods are more commonly used to deliver the allergen to the patient. Both methods are able to alter the natural course of the disease and prevent the emergence of new sensitivities [6].The use of ASIT leads to a reduction in the symptoms of the disease, a decrease in the need for treatment, and in addition has a long-term clinical effect by preventing the development of allergies and its symptoms. Treatment affects the underlying immunological mechanisms responsible for the development of clinical symptoms.

KEYWORDS: *Allergic rhinitis, Pediatric, Immunotherapy, Unsatisfactory.*

INTRODUCTION

Among the current issues of modern allergology, the problem of allergic rhinitis (AR) in children occupies a special place [2, 4, and 5]. Allergic rhinitis is one of the most common allergic diseases in childhood [1, 3]. This disease is a worldwide problem because it has a high specific gravity (60–70%) in the composition of allergic pathology and is common in the pediatric population (10–15%), emphasizing its importance [6].

Given the impossibility of eradicating an allergen of significant importance and the short-term effects of pharmacotherapeutic effects, allergen-specific immunotherapy (ASIT) is the most effective treatment for AR and is important [1].

Subcutaneous (SCIT) and sublingual (SLIT) immunotherapy methods are more commonly used to deliver the allergen to the patient. Both methods are able to alter the natural course of the disease and prevent the emergence of new sensitivities [6].The use of ASIT leads to a reduction in the symptoms of the disease, a decrease in the need for treatment, and in addition have a long-term clinical effect by preventing the development of allergies and its symptoms. Treatment affects the underlying immunological mechanisms responsible for the development of clinical symptoms.

MATERIALS AND RESEARCH METHODS

The study was conducted in the pediatric allergology department of the Tashkent Medical Academy Multidisciplinary Clinic and examined 79 sick children with a diagnosis of AR. The age of the patients diagnosed with allergic rhinitis was 6 to 12 years, and the mean age of the patients was 9.1 ± 0.31.

All patients were interviewed prior to admission to the clinic to diagnose or confirm “Allergic Rhinitis”. The survey was developed and adapted by the international ARIA program. The questionnaire consists of 2 main questions and 10 sub-items. Small items have “yes” or “no” answers.

The diagnosis was made according to the international classification of ARIA. During the study, all 40 patients were diagnosed with AR interstitial course and 39 patients were diagnosed with AR persistent. The skin irritation method was tested in all patients, where sensitivity to different groups of allergens was determined. ASIT was performed in 35 patients with hypersensitivity: SCIT in 40 patients with AR for 3 years and SLIT in 16 patients. The effectiveness of allergen-specific immunotherapy was evaluated on a 4-point scale:

"4 points" - a very good result (complete absence of symptoms after a course of treatment);

"3 points" - a good result (significantly improves nasal breathing, restores olfactory function, rhinorrhea and sneezing are only in great contact with allergens);

"2 points" - a satisfactory result (the main symptoms are less noticeable than before treatment, the need for drug treatment is reduced);

"1 point" - unsatisfactory result (no effect from treatment).

The data obtained were processed using the SPSS statistical software.

RESULTS AND DISCUSSIONS

According to the results of Key Question 1, the following questions were answered during a survey of 79 patients. Aqueous discharge from the nose was detected in 40 patients (100%), and in 20 children (17.8%) - a small amount of mucous discharge. Sneezing and nasal congestion were observed in all children in the study (100%). Difficulty breathing through the nose was observed from mild to non-nasal breathing at all. Itching of the nose was confirmed by all patients, persistent itching was noted in 32 patients (28.5%), moderate itching - in 45 patients (40%).

In answering question 2, all patients denied unilateral nasal symptoms, and nasal congestion was observed without other symptoms, confirming the presence of an allergic process. Thick discharge from the nose to the throat was observed in 16 (20.3%) patients and mucosal-purulent discharge in 7 (8.8%) patients, indicating the presence of other otolaryngological pathology. Recurrent nosebleeds, watery rhinorrhea, and forced nasal congestion occur in 45 (40%) patients. In 70 patients (88.3%), odor insensitivity was identified as an additional symptom of AR.

Thus, the survey identified allergic rhinitis in all children, as well as pathology of the otolaryngological organs, which required further detailed definitive diagnosis.

Next, we analyzed the age at which the first symptoms of AR were observed. The first symptoms of AR were recorded at 5.9 years of age. The mean age for referral to AR and clinical diagnosis was 9.1 years. It should be noted that 3 years elapsed from the onset of the average AR symptoms until diagnosis. The non-parametric analysis method identified the formation and late diagnosis in 74 patients (95.5%) and noted timely referral in 5 (4.5%) patients. Thus, the above study confirmed global data on delayed referral to specialists. The distribution according to the severity of patients with AR showed the following: in patients with intermittent AR, the severity was observed in 32.5% (13), moderate (42.5% (17) and mild - 25% (10) cases.

Mild persistent AR was not observed, the mean level was recorded in 22 patients (43.6%), and the severe level was recorded in 17 patients (43.6%), $r < 0.05$. It should be noted that children with a mild level of AR are excluded from the scope of medical examination, parents do not correctly interpret the symptoms of AR in children, and only consult a doctor when the level of AR worsens.

In group 1 patients with intermittent AR, an exacerbation of the disease was observed mainly from June to mid-July. In the group of pollen allergens, sensitivity to cereals was most often detected - in 40 (74.1%) patients. Sensitivity to weeds from the group of pollen allergens was observed mainly in wormwood pollen - 35 (54.9%), sensitivity to tree dust - 7 (13%) and poplar in 5 (11.1%) patients. Epidermal sensitivity was noted in 3 individuals (7.5%). Children in the examined patient group were found to be hypersensitive to household products.

Patients in group 2 with persistent AR showed high sensitivity to pollen and household allergens. Skin sensitivity to weed allergy was predominant in 56 (96.6%) patients. In 49 patients (84.5%), sensitivity to grass and cereal dust was found to be unusual. Among pollen allergens, sensitivity to tree dust was lowest in 6 patients (10.3%). Sensitivity of the skin to household allergens was detected in almost half of patients with persistent AR - 25 (43.1%). The following were identified from the spectrum of aeroallergens: Dermatophagoideus farinae - 13 (22.4%), Dermatophagoideus pteronissinus - 16 (27.5%), library dust - 6 (10.4%) patients. Epidermal

allergens were also identified: dog hair - 3 (5.1%), cat hair - 8 (13.8%) and pillow feathers - were observed in 10 patients (17.2%) who were in constant contact with the allergen.

In this study, patients underwent ASIT based on data obtained after skin scar analysis. Subcutaneous immunotherapy was performed in 19 patients from group 1 (47.5%) and 21 patients from group 2 (52.5%) with intermittent AR in 40 patients. After 1 course of subcutaneous immunotherapy, good results were observed in 6 (31.6%) patients with intermittent AR in group 1 and in 5 (23.8%) children with persistent AR in group 2, only during the disease season and in contact with allergens. The result was satisfactory in 10.5% of cases due to the exacerbation of AR symptoms.

Subcutaneous ASIT significantly improves the effectiveness of treatment in both groups of patients, taking into account the dose of allergens delivered each year. In all patients in group 1 with intermittent AR, treatment results were found to be positive (89.5%) within 3 years after receiving ASIT, but were satisfactory in 10.5% because the disease was seasonal and contact with allergens led to an increase in AR symptoms. In 31.6% of cases, the treatment outcome of patients was good, which was explained by significant contact with allergens and cross-sensitization in the use of binding allergens i.e. observation of episodic recurrence of AR symptoms. In 57.9% of patients, very good results were obtained after the completion of the entire course of treatment, in this category of patients neither the use of binding allergens nor significant contact with allergens showed AR symptoms. Positive results were observed in 66.7% of children with persistent AR in group 2 after 3 years of treatment. In this group of patients, good and satisfactory results after treatment were 33.3% and 42.9%, respectively. After 3 courses of ASIT, the efficacy of the subcutaneous treatment method in group 2 with persistent AR was statistically confirmed ($r < 0.05$).

To assess the effectiveness of the received therapy, skin scarification tests were repeated in all groups after ASIT by subcutaneous method, taking into account the sensitization spectrum after 1-2-3 years. In the 1st group of patients with intermittent AR after the course of treatment, a positive trend was observed in 18 (94.7%) children after 1-2-3 years, a strong, direct correlation between treatment efficacy and skin scarification test results was $r = 0.512$. statistically confirmed ($r < 0.05$).

After ASIT treatment in group 2 of children with persistent AR, only after the 2nd and 3rd courses of treatment, positive dynamics was noted in 12 (57.1%) patients, which was confirmed by the results of a skin examination - showed a direct and strong correlation $r = 0.537$, $p < 0, 05$.

The sublingual ASIT method was performed in 31 patients with AR. All patients were divided into two groups: 16 (51.6%) children with intermittent AR in group 1, 15 (48.4%) patients with persistent AR in group 2 underwent 3 courses of treatment, and at the end of each course to assess the effectiveness of ASIT skin tests were performed.

After ASIT sublingual treatment, a positive result was observed in 14 (87.5%) patients in group 1 with intermittent AR and in 13 (86.6%) patients in group 2 with persistent AR ($r < 0.05$).

Exacerbation of seasonal AR symptoms was observed only in 4 (25%) children in group 1 with intermittent AR and in 2 patients (13.3%) in 2 groups with AR after 3 courses of sublingual ASIT.

Complete clinical remission of the disease was confirmed with positive dynamics after 2 and 3 courses of ASIT in 100% of patients in group 1 with intermittent AR; a very strong relationship was found -r = 0.946, r <0.01. No complete clinical remission of the disease was detected in group 2 patients with persistent AR, but a positive trend (partial clinical remission) was observed after ASIT in 11 (73.3%) patients. In this group of patients, disease progression was observed, and during ASIT, patients may not always follow a hypoallergenic regimen and diet, i.e., are more likely to interact with allergens [6].

CONCLUSION

1. It is recommended that the questionnaire proposed by the ARIA program be implemented at the primary care level. It is recommended to use the questionnaire method for pre-clinical diagnosis and diagnosis of otolaryngological pathology in children with suspected AR, as well as AR, and timely consultation with specialists.

2. The data obtained are a priority in the development of a strategy of preventive measures aimed at preventing the development of AR and lead to early detection of AR in children.

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