

Evaluation Of Dynamics Of Different Methods Of Treatment For Respiratory Allergosis

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Abstract

The dynamics of different treatment methods with different treatment methods was assessed in 120 patients with pollen sensitization. The indicators of the quality of life of patients improved with the use of both specific and non-specific methods of treatment ($p < 0.05$). The best results were obtained with the use of allergen-specific immunotherapy, auto-serotherapy ($p < 0.001$).

KEYWORDS: respiratory allergies, hay fever, quality of life, therapy methods

INTRODUCTION

Respiratory allergoses are a collective concept and combines lesions of the nose and paranasal sinuses, larynx, trachea, bronchi and lungs. The lesion is based on allergic immunological mechanisms. The realization of the immunological conflict and its nature depends on the allergenic effect and the immune response of the body, determined by genetic factors, hormonal influence (1,7,11).

All over the world, pollinosis is a widespread disease. The steady increase in the incidence and prevalence of pollinosis, the negative impact on the quality of life of patients dictates the need to select the most effective methods of treatment(9).

Recently, the clinical picture of pollinosis has changed: patients are often sensitized to several allergens, an aggravation of the severity of the course of the disease with a predominance of mixed forms, as well as the predominance of phenotypes resistant to therapy has been noted(6). Untimely diagnosis and treatment of pollinosis lead to the rapid development of polysensitization and transformation in some patients of symptoms of seasonal allergic rhinoconjunctivitis into bronchial asthma. The combined effect of all the symptoms of pollen allergy can be painful for the patient, disrupts his daily activity, sleep structure, which leads to a decrease in the quality of life. Special questionnaires on the quality of life allow you to individualize both the treatment process and the program of preventive and rehabilitation measures. To study the quality of life of patients with pollen sensitization, a specific validated questionnaire RQLQ (Rhinoconjunctivitis Quality Of Life Questionnaire) is used, which most fully reflects the severity of clinical manifestations, emotional, psychological state of patients.

The aim of the study is to evaluate the dynamics of various methods of treatment for respiratory allergoses.

MATERIALS AND METHODS

A retrospective-prospective clinical controlled study was conducted in parallel groups, in which 120 patients participated.

Criteria for inclusion in the study: pollen allergy (seasonal allergic rhinitis, conjunctivitis, pollen bronchial asthma) age from 18 to 55 years, the duration of the disease is at least 5 years.

Exclusion criteria: exacerbation of chronic diseases, severe concomitant somatic pathology, mental illness, pregnancy and lactation, newly diagnosed disease, undergoing a course of allergen-specific immunotherapy (ASIT) or autotherapy/ autothistaminotherapy (AST/ASGT)

Among the patients included in the study, 52 (37.1%) were male, 64 (62.9%) were female. The average age of the examined (M+SD) for the whole group was 34.9 + 10.8 years, the average age of men was 30.1+10.9 years, women-37.5+9.9 years. The duration of the disease is -9.2+7.1 years. The onset of the disease since childhood was noted by 36 patients. Monovalent sensitization prevailed in 24.3% of patients, polyvalent sensitization prevailed in 75.7%.

Pollen allergy in all patients manifested symptoms of rhinoconjunctivitis. Pollen bronchial asthma (BA) was additionally diagnosed in 26 people (18.6%).

Observation time is two pollination seasons. In season 1, all patients stopped the symptoms of pollen allergy using only pharmacotherapy (FT). In season 2, patients were randomized using a random number generator into three groups depending on the type of therapy. Patients of group 1 (n=40) received a course of autotherapy, group 2 (n=40) – allergen-specific immunotherapy, group 3 (n=40) - used only standard pharmacotherapy for the prevention and suppression of symptoms of pollen allergy according to the recommendations of ARIA (Allergic Rhinitis and its Impact on Asthma), GINA (Global Initiative for Asthma), clinical protocols for the treatment of pollinosis and asthma in the Republic of Uzbekistan.

At the starting point, the groups were comparable in gender, age, duration of the disease, clinical manifestations of pollen sensitization, severity of scarification work.

AST courses were conducted pre-season, 2 weeks before the alleged exacerbation, blood sampling was carried out after provocation with causal allergens. Autotherapy was administered daily intradermally, in increasing dosage, according to the scheme, starting from 0.1 ml to 0.7 ml, at 1-2 points, with a course of 14 injections

Table 1 Scheme of autotherapy for respiratory allergoses

Days	Amount of serum ml* number of injection points	Area of injection	Total serum volume ml
1	0,1	Between the spinous processes of the VII cervical and I thoracic vertebrae	0,1
2	0,1*2	The center of the fold of the elbow fold at the radial edge of the biceps tendon of the shoulder muscle	0,2
3	0,15*2	Palm surface of the forearm, above the wrist fold by 1.5 cm	0,3
4	0,2*2	The radial side of the forearm, above the wrist fold by 1.5 cm	0,4
5	0,2*2	Anterolateral surface of the lower leg, 6 cm above the center of the lateral ankle	0,4
6	0,2*2	Anterolateral surface of the lower leg, 7 cm above the center of the lateral ankle	0,4
7	0,2*2	Under the clavicle, on the mid-clavicular line	0,4

8	0,2*2	Above the navel level by 4 cm and outwards from the midline of the abdomen by 0.5 cm	0,4
9	0,2*2	Above the navel level by 2 cm and outward from the midline of the abdomen by 2 cm	0,4
10	0,2*2	Between the spinous processes of the I and II thoracic vertebrae, away from the midline by 1.5 cm	0,4
11-14	The injection points are repeated from 1 to 4 days for 0.7 ml		
The course dose is 6.2 ml			

The main AST courses were conducted at the RNSAC polyclinic. To preserve the desensitizing effect at the end of the main course, in the absence of clinical manifestations, patients were administered an outpatient maintenance dose of autoserum (0.3 ml) 1 time every 3 weeks until the beginning of the pollination season.

ASIT courses were conducted according to standard schemes, using standardized water-salt extracts of pollen allergens produced by NPO Microgen (Stavropol, Russia), started pre-season, finished in spring. The duration of treatment was 6.1+0.9 months.

Table 2 Scheme of sublingual ASIT in respiratory allergoses

Date of receipt	Breeding scheme	Dose in ml	Reminder
1	2	3	4
	10^{-5}	0.1 in the morning, in the evening 0.2 in the morning, in the evening 0.4 in the morning, in the evening 0.6 in the morning, in the evening 0.8 in the morning, in the evening	Every day 2 times
	10^{-4}	0.1 in the morning, in the evening 0.2 in the morning, in the evening 0.4 in the morning, in the evening 0.6 in the morning, in the evening 0.8 in the morning, in the evening	Every day 2 times
	10^{-3}	0.1 in the morning, in the evening 0.2 in the morning, in the evening 0.4 in the morning, in the evening	Every day 2 times

		0.6 in the morning, in the evening 0.8 in the morning, in the evening	
	10 ⁻²	0.1 in the morning 0.2 in the morning 0.4 in the morning 0.6 in the morning 0.8 in the morning	Every other day, 1 time
	10 ⁻¹	0.1 in the morning 0.2 in the morning 0.4 in the morning 0.6 in the morning 0.8 in the morning	2 times a week
	10 ⁻¹	0,6 in the morning	In 10 days 1 time

In case of insufficient therapeutic effect in groups 1-3, additional use of symptomatic FT (antihistamines, intranasal glucocorticosteroids, decongestants, hormones, B2 agonists, inhaled steroids) was allowed.

The quality of life of patients with pollinosis was assessed by using a modified AQLQ questionnaire, which is a specific, valid and reproducible tool for assessing the quality of life associated with a health condition. It allows you to assess the degree of influence of the symptoms of the disease and treatment on the social, emotional well-being of each patient. Taking into account the frequent transformation of allergic rhinitis into AD, for the early detection of bronchospastic manifestations, we supplemented this questionnaire with a number of questions showing timely identification of the aggravation of symptoms of pollen sensitization and correct symptomatic therapy.

Quality of life criteria	AST group(n=29)		ASIT group(n=51)		FT group(n=26)	
	Season 1	Season 2	Season 1	Season 2	Season 1	Season 2
Types of activities	6,0(5,0;7,0)	3,0(2,0;4,0) *	6,0(4,0;7,0)	3,0(2,0;5,0) *	6,5(4,0;7,0)	5,0(4,0;7,0)
Sleep	3,0(1,0;4,0)	1,0(0;2,0) *	2,0(1,0;5,0)	1,0(0;2,0) *	1,0(0;2,0)	1,0(0;1,0)
Common symptoms	4,0(2,0;6,0)	2,0(2,0;4,0) **	3,0(1,0;7,0)	2,0(0;4,0) *	3,0(1,0;4,0)	2,0(2,0;3,0) #
Practical problems	5,0(3,0;9,0)	4,0(2,0;5,0) **	6,0(5,0;9,0)	3,0(1,0;4,0) *	4,5(3,0;8,0)	3,0(3,0;6,0) #
Nasal symptoms	9,(7,0;11,0)	5,0(4,0;7,0) *	9,0(7,0;11,0)	4,0(3,0;6,0) *	8,5(6,0;10,0)	6,0(5,0;8,0) #
Eye symptoms	6,0(3,0;7,0)	3,0(2,0;5,0) *	6,0(4,0;8,0)	2,0(1,0;3,0) *	5,0(3,0;6,0)	3,0(2,0;4,0) **
Bronchopulmonary manifestations	4,0(,0;7,0)	2,0(0;4,0) **	2,0(0;4,0)	1,0(0;3,0) *	1,5(0;6,0)	1,0(0;4,0)
Emotional state	4,0 (2,0;6,0)	2,0(1,0;4,0) *	4,0(3,0;8,0)	1,0(0;3,0) *	4,0(2,0;6,0)	2,0(1,0;4,0)
Total cumulative score	41,0 (29,0;51,0)	23,0 (18,0;33,0) *	41,0 (30,0;54,0)	19,0 (11,0;26,0) *	33,5 (24,0;49,0)	23,0 (18,0;36,0) #

Table 3 Dynamics of quality of life indicators of patients with pollinosis on the background of ongoing therapy

The questionnaire includes 29 questions combined into 8 sections. Average values are defined for each section. For each item, the score varied from 0 (no complaints) and up to 3 points (maximum violation). The maximum value is 87 of the therapy performed

*-p < 0.001; **-p < 0.01; # p < 0.05 compared to the original data.

After the 1st and 2nd pollination seasons, the total RQLQ score was calculated and the dynamics of each indicator was tracked.

Statistical data processing was carried out using generally accepted methods of variation statistics. The study parameters are presented in the form of a meridian (Me) with an interquartile span (25%; 75%). The reliability of the differences in the groups was assessed by nonparametric methods. The Mann-Whitney U-test was used to compare indicators between groups, and the Wilcoxon criterion was used when comparing indicators within groups. The differences in the compared indicators were taken as confidence results at $p < 0.05$. The control over the group probability of the first row error was carried out by the Holm–Bonferonni method (adjustment (adjust) p-value (p_{adj}) $p < 0.05$). The age of the patients, the duration of the disease (in years) are presented as the mean (M) ± standard deviation (SD). Spearman's(r) method was used to identify correlational relationships. The obtained data were processed using statistical formulas of Statistica 6.0., "Microsoft Exel 2010" programs.

RESULTS AND DISCUSSION

In the 2nd pollination season, an improvement in the quality of life was noted in patients of all groups. The results of the quality of life study are determined by the RQLQ scale.

In the second observation season in the first group (AST), the total total score decreased on average from 40.4 ± 12.9 to 24 ± 10.9 points ($p < 0.001$), in the second (ASGT) - 42.5 ± 13.4 to 22.1 ± 9.5 points ($p < 0.001$), in the second (ASIT)-) - 41.7 ± 16.3 to 19.4 ± 10.5 points ($p < 0.001$). Despite the fact that in the third group (FT) there was the least dynamics of such indicators of quality of life as activities, sleep, bronchopulmonary manifestations, a statistically significant decrease in the total value of the indicator (c) was obtained - 35.6 ± 15.1 to 27.1 ± 13.9 points ($p < 0.01$).

The analysis of the differences in the total score between the groups after the treatment of pollinosis in various ways is presented in Table 3.

There was no statistically significant change in the quality of life after the treatment of pollinosis in various ways between the groups, however, when comparing the methods of ASIT and FT, the best results were obtained ($p_{adj} 3-4 = 0.056$), which may indicate a higher efficiency of ASIT compared to with ft. It is possible that the results obtained are associated with a short follow-up period (two pollination seasons), and the effectiveness of ASIT increases after the 2nd and 3rd courses of treatment.

Group, treatment method	N	Total cumulative quality of life score (2nd observation season)	P _{adj}
1st autoserotherapy	29	23,0(18,0;33,0)	P ₁₋₂ =0,451 P ₁₋₃ =0,174 P ₁₋₄ =0,577
2nd allergen-specific immunotherapy	51	19,0(11,0; 26,0)	P ₃₋₄ =0,056
3rd monopharmacotherapy	26	23,0(18,0;36,0)	

The analysis of the results showed that the insufficient improvement of quality of life indicators against the background of monopharmacotherapy is due to the fact that most patients, for a number of reasons (financial difficulties, insufficient complementarity, stereoidophobia, etc.), did not use the entire possible range of medicines to reduce the symptoms of the disease. As a result, persistent or insufficiently reduced clinical manifestations of the disease were reflected in the indicators of quality of life.

The methodology used in our work to assess the quality of life of patients with pollinosis using the RQLQ questionnaire reliably reflects the patient's well-being before and after treatment, allows us to trace the dynamics of clinical manifestations, and, accordingly, the effectiveness of therapy, compare the impact of various methods of therapy for pollinosis on quality of life indicators.

CONCLUSION

Thus, it becomes obvious that with the help of regular use of questionnaires, identification of the most vulnerable components of the quality of life in a particular patient, further focused adjustment of these parameters and individual selection of the most effective method of therapy for each patient is possible.

In our study, the quality of life indicators of patients with pollinosis improved with the use of both specific and non-specific therapy ($p < 0.05$). Allergen-specific immunotherapy, as well as autoserotherapy, and to a greater extent improved the quality of life of patients with pollinosis ($p < 0.001$) than monopharmacotherapy ($p < 0.01$), and, therefore, are a priority in the selection of treatment for patients with this pathology.

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