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Clinical and functional efficacy of Allergodil in patients with allergic rhinitis associated with mild to moderate bronchial asthma

Key words: *allergic rhinitis, Allergodil, rhinomanometry*

A ubiquitous growth of allergic rhinites (AR) prevalence is noted recently, they are various by form and clinical course peculiarities [3, 5]. AR causes are various, but they are more often associated with hypersensitivity to aeroallergens, such as plants pollen, domestic and epidermal allergens.

According to findings of clinical and epidemiological studies performed during last decade, the growth of AR prevalence varies in the limits of 0.3-1.5% depending on the region of a study, and in some professional groups it may reach 25% [2, 4]. In the respiratory allergic diseases structure the proportion of AR is not less than 15.5%, and taking into account those associated with bronchial asthma (BA) it reaches 66.8-95.0% [1, 6, 7].

The allergic reaction type I (immediate response) is the main RA mechanism. The reaction of hypersensitivity, which is mainly mediated by IgE release of histamine and other must cells mediators, is developed as a result of the contact of sensitized body with allergen.

Three stages are defined In the course of allergic disease. The first stage is immunological which is characterized by an allergic antibodies synthesis. The second stage is pathochemical, characterized by that after the repeated contact with allergen there is an interaction of target cells having IgE complexes or other antibody classes with specific antigen and a consequent specific release of mediators (histamine, leukotriene, other cytokines). The third stage is pathophysiological. The release of mediators having high biological activity leads to glands hypersecretion, increased capillary permeability, the edema of nasal cavity mucosa, which is clinically manifested as nose stuffiness, rhinorrhea, sneezing, itching, persistent nasal breathing obstruction. The clinical condition and the quality of life of patients with AR is dramatically impaired.

Systemic antihistamines are traditionally used for the treatment of AR, including those of last generation (astemizole, loratadine, cetirizine, terfenadine), sometimes combined with a topical medication based on sodium cromoglycate; in severe cases glucocorticosteroids are used. Although the use of those medications is associated with a risk of several side effects, from complaints about nasal mucosa dryness to the symptoms of impaired liver and central nervous system functions.

All above-stated data determine the relevance of the search of new medicines eliminating the AR symptoms. Thus, the nasal spray Allergodil with the main active substance azelastine is developed, it has a complex antiallergic activity. Allergodil is a potent selective H1 histamine receptor blocker. Besides its selective histamine antagonism Allergodil inhibit a production orca release of many other mediators which take part in allergic reactions. The studies in vitro showed that Allergodil suppressed histamine release by must cells and basocytes, activated by allergens. Furthermore, Allergodil inhibit leukotrienes LTC4 and LTD4 excretion by activated polymorphonuclear leukocytes of humans and guinea pigs. As it was demonstrated in preclinical studies, the Allergodil efficacy essentially depends on its influence on Ca2+ ions concentration in cells cytoplasm. The medication inhibits Ca+

ions entering into a cell and release of the intracellular calcium. Allergodil also leads to an inhibition of protein kinase C activity in inflammatory cells.

The aim of the study: to investigate the clinical and functional efficacy of Allergodil in patients with AR associated with BA.

Materials and methods

A study was conducted in the Institute of Phthisiology and Pulmonology of National Academy of Medical Science of Ukraine, in which Allergodil efficacy in 40 patients (14 male and 26 female age 18 to 60) with AR associated with mild to moderate BA (FEV_1 – 71.4 ± 5.7 %), with reversible bronchial obstruction in berotec test was investigated.

Allergodil was administered in the dosage of 0.14 ml as a single spaying in each nostril twice a day during 21 day.

6 patients from all studied people used inhalation steroids as a part of complex BA treatment, 15 patients used antihistamines, 5 patients used inhalation steroids and systemic antihistamines, 14 patients didn't receive any concomitant treatment.

The efficacy of the medication was estimated according to the dynamics of the studied clinical symptoms of AR, rhinoscopy data and characteristics of rhinomanometry, which was performed on «Flowscreen» device by «Erich Jaeger», Germany. The following characteristics were analyzed: right nasal flow (Flow R), right resistance (Resist. R), left nasal flow (Flow L), left resistance (Resist. L), summary nasal flow (Flow Sum).

Intensity of clinical symptoms was assessed in dynamics on the basis of patients' self-observation diary and otolaryngologist examination before treatment and during the conducted therapy. The symptoms intensity was expressed in points:

- 0 points – no symptoms
- 1 point – mild symptoms
- 2 points – moderate symptoms
- 3 points – severe symptoms.

Before Allergodil treatment all patients complained of sneezing, nasal stiffness, itching in nose, rhinorrhea, headache, back of the throat irritation, anosmia. Hyperplasia of nasal mucosa of different degree of intensity was observed at rhinoscopy. 6 of 40 examined patients had severe AR symptoms, 24 patients had moderate symptoms, 10 patients had mild symptoms.

All patients noted the deterioration of life quality. Due to persistent difficulty in nasal breathing the oral breathing prevailed in patients, which caused mouth dryness, sleep disturbance, headache, emotional instability, efficiency decrease.

Results and discussion

There was an augmentation in summary nasal flow in all patients at rhinomanometry during functional test with Allergodil. After nasal spray Allergodil introduction in this category of patients the rapid onset of action of the medication (during 10-15 minutes after introduction), which lasted not less than 12 hours, was observed.

Starting from the 4th day of the treatment in the statistically relevant number of cases the following symptoms disappeared: sneezing, stiffness in nose, rhinorrhea, headache, back of the throat irritation, sense of smell restored. Patients who received inhalation steroids or systemic antihistamines in complex treatment the above listed symptoms disappeared earlier (on 2nd-3rd day of the treatment), and in patients which didn't receive the concomitant treatment these symptoms persisted till the 5th-7th day.

The decrease of hyperplasia of nasal cavity mucosa was observed during the treatment, and after 3 weeks 85% of patients had normalization of rhinoscopic picture.

The reliable improvement of summary nasal flow from (476.0 ± 15.7) to (533.3±20.3) ml/sec ($p < 0.05$) was noted at rhinomanometry. The dynamics of rhinomanometry characteristics is presented in the table.

Table

Rhinomanometry characteristics before and after treatment with Allergodil

Characteristic	Before treatment	After treatment
Flow R, ml/sec	276.7 ± 16.4	312.7 ± 14.7
Resist. R kPa x s/l	0.79 ± 0.09	0.48 ± 0.042*
Flow L, ml/sec	199.3 ± 16.8	220.7 ± 12.4
Resist. L kPa x s/l	1.08 ± 0.07	0.61 ± 0.09*
Flow Sum, ml/l	476.0 ± 15.7	533.3 ± 20.3*

Note: * – statistically reliable comparing to the baseline ($p < 0.05$).

The good tolerance of the Allergodil medication should be noted. The side effects appeared during the first 4 days of the treatment and were expressed weakly. The nasal dryness was present in 2 patients, bitter taste was noted in 3 patients. There was no need in the medication withdrawal in any case.

All patients noted the improvement in their quality of life: enhancement of nasal breathing, night sleep, emotional state, headache disappearance, efficiency increase.

The results of the treatment were assessed as good by 34 patients, as satisfactory by 5 patients, as bad by 1 patient. 39 (97.5%) patients were satisfied by the results of the treatment, they expressed their willingness to continue using the medication.

The performed studies showed that Allergodil had a marked antiallergic activity in the patients with AR associated with BA, which was expressed in the elimination or the significant improvement of the clinical symptoms of AR and in the improvement of nasal breathing.

Conclusion

The presence of augmentation of summary nasal flow in the functional test with Allergodil during rhinomanometry is one of the criteria of patients selection for Allergodil treatment.

The high clinical and functional efficacy of the medication is proved.

Allergodil is well and effectively combined with medications for treatment of atopy and BA.

The medication does not cause serious side effects and it is well tolerated by patients.

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КЛІНІКО-ФУНКЦІОНАЛЬНА ЕФЕКТИВНІСТЬ ПРЕПАРАТУ АЛЕРГОДИЛ У ХВОРИХ НА АЛЕРГІЧНИЙ РИНІТ, ПОЄДНАНИЙ З БРОНХІАЛЬНОЮ АСТМОЮ ЛЕГКОГО ТА СЕРЕДНЬОГО СТУПЕНЯ ТЯЖКОСТІ

Ю. І. Фещенко, Л. А. Яшина,
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Резюме. *Алергодил призначали в дозі 0,14 мл у вигляді однократного розпилення в кожний носовий хід два рази на добу протягом 21 дня у 40 хворих на алергічний риніт (АР), поєднаний з бронхіальною астмою (БА), віком від 18 до 60 років. Результати лікування довели високу клінічну ефективність препарату. Алергодил добре та ефективно поєднувався з препаратами для лікування атопії та БА. При застосуванні лікарського засобу не було зафіксовано серйозних побічних ефектів, він добре переносився хворими. Показано, що наявність приросту загального носового потоку в функціональній пробі з Алергодилом при проведенні риноманометрії є одним із критеріїв відбору хворих для лікування даним препаратом.*

Ключові слова: *алергічний риніт, Алергодил, риноманометрія.*

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THE EFFICACY OF ALLERGODYL IN PATIENTS WITH ALLERGIC RHINITIS AND CONCOMITANT MILD TO MODERATE ASTHMA

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Summary. *40 patients with allergic rhinitis, accompanied by asthma in the age of 18–60 years received Allergodyl (single dose 0,14 ml in each nostril twice a day during 21 days). The results of the treatment showed high efficacy of the medication. Allergodyl was effective in combination with other medicines usually administered in atopy and asthma. Allergodyl was well tolerated and had no serious adverse affects. Presence of increase of total nasal flow in functional test with Allergodyl by rhinomanometry could be one of the criteria for selection of patients for treatment with the help of this medication.*

Key words: *allergic rhinitis, allergodyl, rhinomanometry.*

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