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MODERN ASPECTS OF DIAGNOSTICS AND TREATMENT OF POST-INFECTIOUS COUGH HYPERSENSITIVITY SYNDROME

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Abstract. *Problem statement*: search for new methods of treatment of post-infectious cough hypersensitivity syndrome is a very topical problem of practical medicine. *Study objective*: to optimize the treatment of patients with postinfectious cough hypersensitivity syndrome. *Materials and Methods:* The study included 66 patients with post-infectious cough hypersensitivity. All the patients were prescribed antitussive drugs. Patients in the main group (n = 33) additionally underwent nebulizer therapy with 0.1 % solution of hyaluronic acid twice a day and the treatment cycle involved 12–16 sessions. The final points of the study were: improvement of quality of life indicators, achievement of the state of subjective health by the patients, reduction of terms of temporary disability of patients with postinfectious cough hypersensitivity syndrome. *Outcomes*. Full remission of post-infectious cough hypersensitivity syndrome was achieved in all patients of the main group ($p < 0.001$) as a result of the conducted treatment, with disappearance of clinical manifestations, development of responses of calm and increased activation of adaptive responses of the organism. In 52 % of persons from the comparison group ($p < 0.01$) showed a decrease in clinical manifestations of disease signs on the background of stress, pereactivation response or poor adaptation which corresponded to incomplete remission. *Conclusions:* Rational combination of drugs and nebulizer way of introduction of hyaluronic acid allows to remove the symptoms of disease within a short term, restore the patient's quality of life, achieve full remission of post-infectious cough hypersensitivity syndrome.
Key words: postinfectious cough hypersensitivity syndrome, adaptive responses of the organism, nebulizer therapy, hyaluronic acid.

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Topicality of the problem

Coughing is a common syndrome of respiratory system diseases in the outpatient and polyclinic practice. According to the data of the European Respiratory Society (ERS), in the course of study of 18 277 adults aged 20–48 years in 16 countries of the world, cough was found in 30 %, productive cough was found in 10 % and non-productive cough was found in 10 % of those adults. According to the statistical analysis of reasons for requests of general medical assistance, up to 30 % of cases were related to complaints of the different types of cough [19, 37].

Cough occurs in people at any age and is a universal syndrome regardless of sex. There are various reasons for cough, which is why cough syndrome requires careful study by doctors and detailed examination of each separate case [3, 6, 12, 13, 26]. Study of pathophysiology, search for new methods of evaluation and therapy methods for various types of this symptom remain a pressing issue for practicing doctors [1, 4, 8, 18, 25, 39].

Thus, dry cough can be observed in reconvalescents after acute infectious diseases of respiratory airways (3–8 weeks after disease onset). According to the recommendation of the American College of Chest Physicians (ACCP), this symptom can be defined as post-infectious cough hypersensitivity syndrome (PCHS) [20, 31, 36].

One of the main causes of cough hypersensitivity is the state of "dryness" of the mucous membrane of the respiratory tract formed due to partial destruction of glass-shaped cells and acquired inverse inability of mucociliary clearance under the influence of viral or bacterial infection [20, 26, 34]. Significant decrease in the thickness of the epithelial layer and protective mucous membrane leads to the appearance of the nerve endings. Consequently, there is the development of constant irritation of irritant receptors, which are polymodal, and, therefore, they respond to a variety of mechanical or chemical stimulating agents [27].

Treatment of PCHS which is characterized by the presence of non-productive cough, i.e. irritant, obtrusive, debilitating cough which disturbs sleep patterns

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and the patient's daily activity and also reduces the quality of life, requires symptomatic therapy [3, 20, 33–35]. However, the prescribed antitussive drugs affect only the reflex mechanism of cough and the state of epithelium of the bronchial tree remains outside of the scope of their action and it does not always allow to eliminate a pathological process. Therefore, the search for new methods of treatment of PCHS is a very topical problem of practical medicine [29, 38].

It is known that hyaluronic acid (HA) ensures the intake of biologically active substances, molecules and microelements by the tissue of bronchi, accelerates the processes of regeneration and reparation, contributes to the formation of natural viscosity of the mucous layer which covers the endothelium of the bronchial tree and the intercellular matrix [23, 40]. A review of literature data of studies highlighting the efficiency of nebulizer therapy with the use of drugs of reparative action, and namely, HA solution in the treatment of PCHS, showed that such studies have not been found and, therefore, this area of therapy requires a more detailed study.

Study objective: to optimize the treatment of patients with PCHS by way of applying nebulizer therapy with 0.1 % solution of sodium hyaluronate and to study the dynamics of quality of life indicators in patients as well as adaptive responses of the organism in case of this pathology.

Materials and methods: patients after acute infectious diseases of the respiratory tract with dry cough lasting from 3 to 8 weeks.

The exclusion criteria were: tuberculosis, chronic obstructive pulmonary disease, bronchial asthma, cardiovascular disease with the signs of circulatory failure higher than stage I, neurosis-like or psychotic states, oncological diseases, propensity to polyvalent allergy.

A diagnostic search for possible causes of non-productive cough was performed in each clinical case, and namely: general laboratory studies, repeated chest X-ray examination, spirometry, electrocardiography, consultation by allergologist, neuropathologist, pulmonologist, cardiologist. Since PCHS is a diagnosis of exclusion, the absence of pathological changes in laboratory and instrumental methods of diagnostics indicated the inclusion in the study [4, 6, 15, 16, 17].

The study was prospective and controlled. By the method of free choice, the patients were divided into two groups: the main (group 1) and the comparison group (group 2). The study design was approved by the Bioethics Commission of National Pirohov Memorial Medical University, Vinnytsya, (Protocol № 10 as of November 23, 2017). While performing the works, we were guided by generally accepted world and domestic norms according to the main provisions of the EU Regulation № 609 dated 24.11.1986, SSR (1996), Convention of the European Council on Human Rights and Biomedicine (dated 04.04.1997), Helsinki Convention on the International Ethical Guidelines for Biomedical Research Involving Human Subjects (years 1964–2000) and the order of the Ministry of Public Health of Ukraine № 281 dated 01.11.2000.

The research plan involves the prescription of antitussive drugs for all patients of both groups in the recommended daily dosage: Dextromethorphan 30 mg three times a day, daily dosage 90 mg. Besides, persons in the main group additionally underwent nebulizer therapy with 0.1 % solution of HA twice a day with a cycle of treatment consisting of 12–16 sessions. For inhalation, Omron NE-C900 (Japan) nebulizer was used in the mode of natural respiration, the average particle size was 3.0 μm, spraying speed was 0.5 ml/min. The nebulizer chamber was filled with 4 ml (1 nebula) of readymade 0.1 % solution of sodium hyaluronate ("Lorde Hyal", "Yuriya-Farm", Ukraine), which was being sprayed for 8–9 minutes.

The final points of the study were: improvement of quality of life indicators, achievement of the state of subjective health by the patients, reduction of terms of temporary disability of patients with PCHS.

We have examined 66 patients aged from 19 to 52 years who were diagnosed with PCHS at the municipal institution "City Clinical Hospital № 2" of the city of Vinnytsya. Group 1 (main group) included 33 patients and group 2 (comparison group) also included 33 patients. Groups were representative by age and gender. Cycles of the performed drug treatment corresponded to protocols of the Ministry of Public Health [3].

The effect of treatment in patients was determined using quality of life (QL) evaluation, i.e. an adapted questionnaire SF-36, available on the website of Evidence Company "Clinical and Pharmacological Research" [28]. According to the instructions of this company, a statistical processing of data was performed. The scale allows to evaluate physical and mental health levels. The questionnaire was filled out independently by the patient twice – at the beginning of the treatment and two weeks after the treatment. For comparison, we used study outcomes received by domestic authors who used SF-36 in 52 apparently healthy adult respondents [5, 7, 9, 21]. To summarize the outcomes, the following was taken into account: physical health (PH), physical functioning (PF), physical role function (RF), pain intensity (PI), general state of health (GH). Other 4 indicators and, namely, mental health (MH), psychological RF, social functioning (SF) and vital activity (VA) form mental health (MH).

Besides, for rapid assessment of therapy efficacy, patients were asked to determine independently their health status on the 5, 10 and the 15 day of treatment according to the following scale: "health deterioration", "no change", "improvement", "significant improvement", "consider myself apparently healthy". At the beginning of the treatment and two weeks later, the patients determined their functional status according to the differential cough score scale for assessment of cough by force and frequency [3, 30, 32]. The period of temporary disability was taken into consideration as well.

Determining the type of general nonspecific adaptive response of the body was conducted due to ratio the percentage of lymphocytes to segmented neutrophils – the index of adaptations. Typing of adaptive responses

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of the organism (ARO) was performed according to the classical method of L. Kh. Harkavi [2] before treatment, on the 5 and the 15 day of treatment.

The reliability of obtained outcomes was determined using Student's criterion (package Stat Soft Statistica v.6.0). The outcomes with an error $p < 0.05$ were considered as reliable.

Study outcomes and their discussion

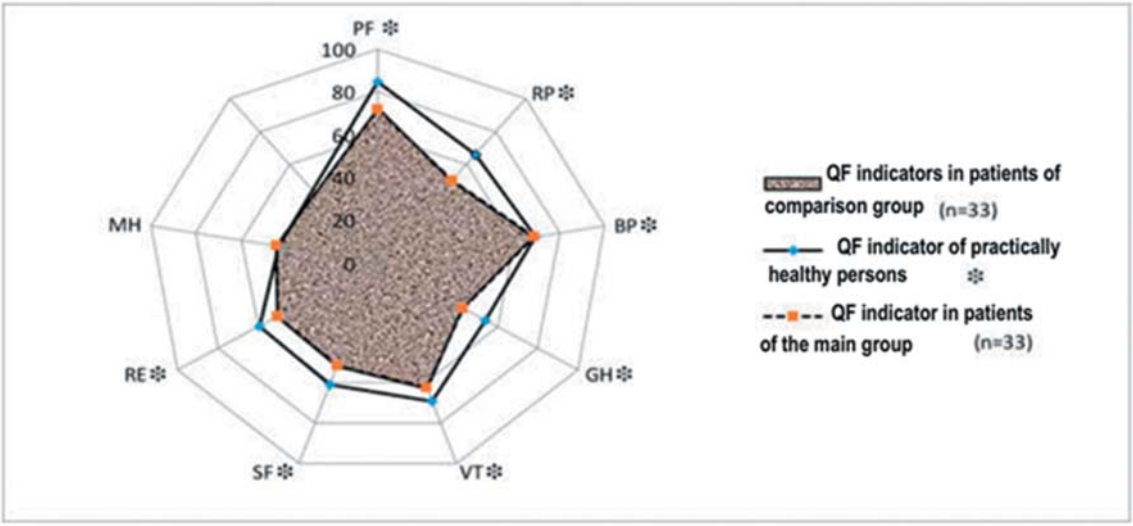
At the beginning of the treatment, the patients complained of dry cough that troubled them during the day, occasionally at night, fatigue, sleep disturbances, a feeling of "dryness" and "tickling" in the throat, voice hoarseness, muscle and skeletal pain, sometimes urine incontinence and emotional instability. Cough attacks were provoked by sharp smells, physical activity, prolonged emotional conversation or changes in the air temperature and humidity, and less often a cough attack was developed without a reason. The state of health disturbed the patient's daily activity, prevented him or her from fulfilling their professional duties and reduced the quality of life. Pathological objective changes on the part of the respiratory system have not been found in any of the cases, with the exception of imperceptible hyperaemia of the posterior wall of the oropharynx in 15 patients. Spirometry assessment showed no changes on the part of external respiration.

At the beginning of the study, data of QL scales in the patients of both groups were similar ($p > 0.05$). The data of the questionnaire regarding PH and MH in patients with PCHS were significantly ($p < 0.01$) different from the data of apparently healthy cohort of age-appropriate persons, except for the assessment of PI, VA and MH (figure 1).

It should be noted that the lines reflecting QL indicators in the patients of the main group and those in the comparison group on the diagram (figure 1) coincide because they do not have a significant difference. A decline in social activity, physical and role functioning can be explained by the presence of prolonged dry cough, voice hoarseness, dissatisfaction with the duration of treatment or slight positive dynamics.

The analysis of peripheral blood in the examined patients showed the presence of unfavourable ARO (pereactivation response – the index of adaptations is 0.91, acute and chronic stress – the index of adaptations is 0.32–0.41 and less 0.31 respectively [2]) practically in every third person examined, without obvious differences between groups, and namely: acute stress was observed in 22.8 % of patients in the main group, chronic stress was observed in 14.3 % of patients (n = 33), pereactivation response was observed in 1.5 % (n = 33), while acute stress was observed in 24.0 % in patients (n = 33) of comparison group ($p > 0.5$), chronic stress was observed in 12.0 % (n = 33) ($p > 0.5$) and pereactivation was observed in 2.0 % (n = 33) ($p > 0.5$). At the beginning of the treatment, training ARO were observed in 20.0 % of patients (n = 33) in the main group and in 18.0 % of patients (n = 33) of comparison group ($p > 0.5$). Favourable adaptive responses (calm response the index of adaptations is 0.42–0.51 and increased activation – the index of adaptations is 0.72 and more) also manifested themselves practically with the same frequency and in 15.7 % (n = 33) and 14.3 % of patients (n = 33) respectively in the group, which additionally received HA and in 16.0 % (n = 33) and 16.0 % (n = 33) of persons respectively in the main group ($p > 0.5$).

Over the course of the treatment, no side effects on the part of health were noted in both groups. On the 5th day of the therapy, 75.8 % of patients from group 1 noticed an "improvement" and 24.2 % noticed a "significant improvement" in contrast with persons from group 2 ($p < 0.01$) (table 1). On the 15th day of the treatment, all the patients felt "apparently healthy" after a combination treatment which included nebulizer therapy with 0.1 % solution of HA. In the comparison group, treatment outcomes were significantly lower ($p < 0.01$).



* difference in indicators of QL of healthy persons, patients of group 1 and group 2 before the treatment is reliable ($p > 0.01$), except for MH.

Fig. 1 Indicators of quality of life of patients before treatment (points)

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Table 1. Indicators of the efficacy of different treatment methods in people having postinfectious cough hypersensitivity syndrome

Subjective state of patients	Day 5 of treatment		Day 10 of treatment		Day 15 of treatment	
	1 group * (n = 33)	2 group (n = 33)	1 group * (n = 33)	2 group (n = 33)	1 group * (n = 33)	2 group (n = 33)
Deterioration	0 (0.0 %)	0 (0.0 %)	0 (0.0 %)	0 (0.0 %)	0 (0.0 %)	0 (0.0 %)
No changes	8 (24.2 %)	25 (75.7 %)	0 (0.0 %)	14 (42.4 %)	0 (0.0 %)	0 (0.0 %)
Improvement	15 (45.5 %)	5 (15.1 %)	5 (15.1 %)	11 (33.3 %)	0 (0.0 %)	15 (45.5 %)
Significant improvement	10 (30.3 %)	3 (9.1 %)	15 (45.5 %)	8 (24.2 %)	0 (0.0 %)	8 (24.2 %)
Consider myself healthy	0 (0.0 %)	0 (0.0 %)	13 (39.4 %)	0 (0.0 %)	33 (100 %)	10 (30.3 %)

* the difference in treatment efficacy between the patients in the main group and the comparison group is reliable, $p < 0.01$.

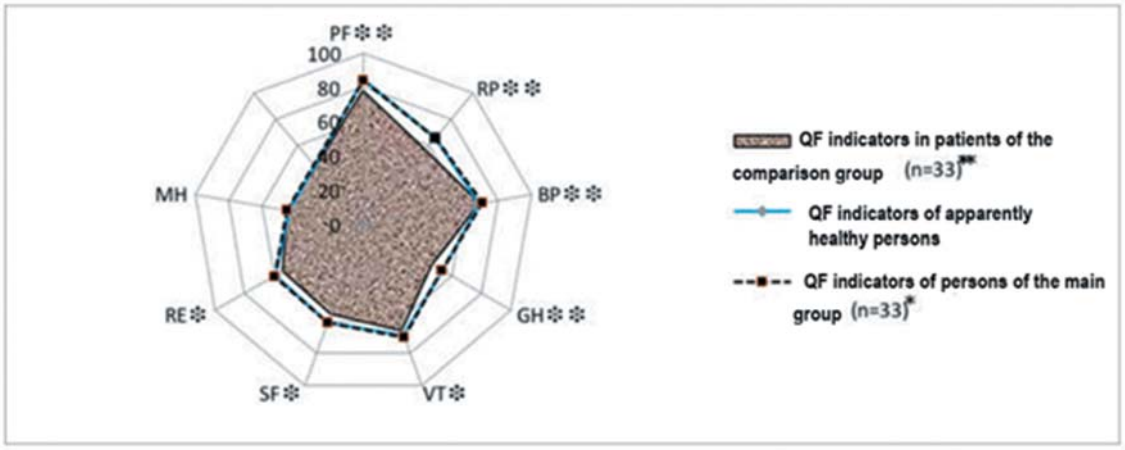
While comparing the indicators of self-assessment of cough evaluated on the 1st and the 15th day of treatment, there was a regression of the average indicator in persons of group 1 by 33.9 % (n = 33) from (5.3 ± 1.4) points to (1.8 ± 0.4) points. The data of respective scale in persons of group 2 were significantly ($p < 0.01$) lower by 25.0 % (n = 33) (3.9 ± 0.7) points taking into account that the reference indicators were practically similar ($p > 0.05$).

It should be noted that antitussive drugs were canceled in 39.4 % (n = 33) of patients in the main group, and they proceeded to work since the 10th day of treatment. However, 45.5 % (n = 33) of patients in the comparison group still continued taking antitussive drugs on the 10th day of treatment and could not perform their professional duties on a full scale (if prolonged linguistic communication was required). Thus, the average duration of temporary disability in the persons that underwent a combination treatment which involved the use of nebulizer therapy with a solution of HA was (12.0 ± 1.7) days, and in the patients who took just antitussive drugs it was (18.0 ± 2.9) days. The expediency of pathogenetic direction of dry cough therapy is emphasized by the significant advantage ($p < 0.05$) of combination treatment plan in the main group.

Repeated survey of patients in the Ukrainian version of SF-36 allowed to objectivize the state of health of individuals after undergoing a different treatment plan (figure 2).

On the 15th day of treatment, obtained indicators of QL of persons after a combination treatment which involved nebulizer therapy with a 0.1 % solution of sodium hyaluronate became normal in compliance with all scales ($p < 0.01$) and did not differ ($p > 0.05$) from the indicators of the healthy cohort of respondents (on the diagram, the QL indicators of the healthy cohort of respondents and the persons in the main group after the treatment coincide and are determined by the same line) (table 2). However, after the treatment, patients of the comparison group showed a positive dynamics, which proved to be significant ($p < 0.05$) only when calculating PH. The indicator of MH was 14.0 % lower than that of healthy individuals.

Changes on the part of ARO were noted over the course of treatment in patients from the comparison group. The number of acute stress responses significantly decreased on the 5th day of treatment by 14.0 % (n = 33) ($p < 0.05$) and such responses were not observed on the 15th day of treatment. Chronic stress responses increased on the fifth day of the treatment by 10.0 % (n = 33) in



P* the difference in the quality of life indicators of patients in the first group and apparently healthy persons is unreliable ($p > 0.05$);
** the difference in the quality of life indicators (PF, RP, BP, GH) of patients in the main group and the comparison group is reliable ($p < 0.01$).

Fig. 2. Quality of life indicators of patients after various methods of treatment (points)

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Table 2. Indicators of physical and mental health of patients after various treatment methods (points)

Indicators	Before treatment		After treatment		Health cohort of respondents
	1 group (n = 33)	2 group (n = 33)	1 group (n = 33)	2 group (n = 33)	
Physical health (PF, RP, BP, GH)	60.4 ± 4,2	61.0 ± 5.1	74.5 ±4.3*	68.3 ± 4,7	73.3 ± 6.1
Mental health (MH, RE, SF, VT)	51.9 ± 3,3	51.3 ± 5,2	63.9 ± 4.1**	55.5 ± 5,8	63.1 ± 6.7

* the difference in indicators of patients of group 1 and group 2 after treatment is reliable ($p < 0.01$); ** the difference in the indicators of patients of group 1 and group 2 after treatment is unreliable ($p > 0.05$).

contrast with the initial level and by 5.0 % (n = 33) respectively on the 15th day of the treatment, however, these changes were not reliable ($p > 0.05$). Compared with reference values, the number of pereactivation responses increased by 6.0 % (n = 33) ($p > 0.05$) on the 5th day and by 12.0 % (n = 33) ($p < 0.05$) on the 15th day. An increase in responses of calm activation was observed on the 5th day and on the 15th day by 4.0 % (n = 33) in contrast with reference values, however, these indicators were not reliable ($p > 0.05$). The number of increased activation responses decreased on the 5th day by 2.0 % (n = 33) and on the 15th day of treatment it decreased by 4.0 % (n = 33) in contrast with the indicators obtained before the beginning of the treatment ($p > 0.05$).

Patients who received combination treatment which involved nebulizer therapy with HA solution showed a decrease in the number of acute stress responses on the 5th day of treatment by 3.0 % (n = 33), on the 15 th day of observations such responses were not noticed ($p > 0.05$). On the 5th day of treatment, there was a significant decrease in chronic stress responses by 8.6 % (n = 33), and by 10.0 % (n = 33) on the 15th day in contrast with indicators obtained at the beginning of the treatment ($p < 0.05$). The data are significantly lower than similar indicators in the control group ($p < 0.01$). No changes were noted in pereactivation responses over the course of treatment in patients of the main group, however, the number of responses was significantly lower than that in patients of the comparison group ($p < 0.01$). On the 5th day of treatment, the number of calm adaptation responses increased by 1.4 % (n = 33) and by 1.5 % (n = 33) on the 15th day in comparison with indicators obtained before the treatment. The obtained data were not reliable ($p > 0.05$). The number of increased activation responses increased by 21.4 % (n = 33) on the 5th fifth day of observation in contrast with reference values ($p < 0.01$) and by 10.0 % (n = 33) respectively on the 15th day ($p < 0.001$). These data were significantly lower than similar indicators in the comparison group ($p < 0.001$).

Thus, under the influence of complex treatment that included nebulizer therapy with HA solution in patients with PCHS, a more significant elevation in the number of increased activation responses ($p < 0.001$) (favourable responses) was observed in contrast with similar data in the control group. The dynamics of ARO of the same type confirms the presence of full remission in patients [10, 11, 14, 29]. In persons who received traditional therapy, a significant increase in the number of chronic stress and pereactivation response ($p < 0.01$) (unfavourable responses) was observed in contrast with the main group. These changes are a marker of incomplete remission [10, 11, 14].

Thus, as a result of the conducted study, design endpoints were achieved with a significant predominance of the outcome ($p < 0.01$) according to all parameters of the treatment efficacy in patients of the main group, full remission of PCHS was also achieved with disappearance of clinical manifestations, development of responses of calm and increased activation of ARO. Persons from the comparison group showed a decrease in clinical signs of the disease on the background of stress, pereactivation response or poor adaptation which corresponded to incomplete remission.

Apparently, self-regeneration of the mucous membrane of the respiratory tract and recovery of the mucociliary matrix require somewhat more time, as evidenced by the clinical course of the disease, data of QL indicators and indicators of differential cough score scale obtained after various treatment options. The absence of side effects of the drug, the effect of treatment after the first procedures, pathogenetic reasonableness and economic availability confirm the efficacy of combination treatment of PCHS with the use of 0.1 % solution of sodium hyaluronate.

Literary sources indicate a pathogenetic feature of the origin of various types of dry cough. Commonly used methods of treatment include the use of antitussive, bronchodilatory agents of chemical and plant origin. In the instructions for nebulizer use of the drug HA the main indications are: We have found no references in the medical literature to the use of HA for patients with PCHS.

HA is a natural polysaccharide, due to the hydrophilic properties of the molecule provides a high degree of hydration in the mucous membranes of the respiratory tract, which in combination with sodium chloride promotes hydration, creates conditions for improving mucociliary clearance. HA has a calming effect on irritated mucous membranes, which often cause a painful cough. In addition to moisturizing and reparative effects, prevents the adhesion (adhesion) of antigens (allergens and microorganisms) to the mucous membrane, which acts as a prophylactic against diseases such as allergic rhinitis. In the instructions for nebulizer use of the drug HA the main indications are: cough with bronchitis, bronchiolitis, bronchiectasis and chronic obstructive pulmonary disease, acute and chronic diseases of the nasopharynx, nasal cavity and sinuses,

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hypertrophy of the adenoids in children, year-round and seasonal allergic rhinitis to reduce mucosal edema, dilute secretions and facilitate breathing. This work describes the use of a 0.1% solution of sodium hyaluronate off-label

A well-known fact is the use of a mixture of hypertonic (3 % and 7 %) solutions of sodium chloride and HA in the nebulizer therapy of chronic pulmonary diseases [23, 40, 41]. We have obtained the data of 14 controlled international studies which confirm that the use of saline solution contributed to the recovery of mucociliary clearance and within a short period it significantly improved the respiratory function (FEV_1); it has no age limitations or side effects [24, 40, 41].

In particular, inhaled HA at relatively high molecular weight has been proven to prevent bronchoconstiction induced in asthmatics by inhalation of methacholine, inhalation of ultrasonically nebulised distilled water, muscular exercise. In patients affected by chronic obstructive pulmonary diseases, Luigi Allegra, Sabrina Della Patrona and Giuseppe Petrigni have demonstrated that repeated administrations of inhaled HA (daily, for 8 weeks) induce significant increase in bronchial patency as well as progressive lung deflation with decrease of residual volume. The authors argue that it is time to change the view of connective tissue and extracellular matrix substances, such as HA, in order to prevent and treat exacerbations of chronic lung disease [23].

The above data arouse a greater interest in the study of pharmacodynamic peculiarities of the action of HA solution on the state of the mucous membrane of the bronchial tree and its application in rehabilitation programs for patients with diseases of the respiratory system.

Conclusions

The outcomes obtained by us are of scientific and practical significance.

First of all, they widen our notions about the pathogenetic reason of appearance of post-infectious dry cough, i.e. inverse functional inability of the mucociliary matrix which causes irritation of irritant receptors and manifests itself as PCHS, but may decrease with the use of HA.

Second of all, they allow us to recommend a more effective treatment scheme in contrast with traditional ones. Combination treatment with application of 0.1 % solution of sodium hyaluronate has a pathogenetic significance. Rational combination of drugs and nebulizer way of introduction of HA allows to eliminate the symptoms of disease within a short term, restore the patients' quality of life and achieve full remission of PCHS.

Besides, the suggested scheme of treatment has a significant economic advantage: financial availability of domestically produced drug and a significant reduction of the terms of temporary disability.

Further study and determination of the type of general non-specific ARO as a criterion of efficacy of the conducted treatment and dividing the patients into groups are promising (for example, into groups of patients who require additional curative measures, those who have fully recovered and those who are healthy).

СУЧАСНІ АСПЕКТИ ДІАГНОСТИКИ ТА ЛІКУВАННЯ СИНДРОМУ ПІСЛЯІНФЕКЦІЙНОЇ КАШЛЬОВОЇ ГІПЕРЧУТЛИВОСТІ

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Резюме. *Актуальність проблеми.* Пошук нових методів лікування синдрому післяінфекційної кашльової гіперчутливості є актуальною проблемою практичної медицини. *Мета:* оптимізувати лікування хворих з синдромом післяінфекційної кашльової гіперчутливості. *Матеріали та методи.* Обстежено 66 хворих із синдром післяінфекційної кашльової гіперчутливості. Всім пацієнтам призначались протикашльові засоби. Хворі основної групи (n = 33) отримували додатково небулайзерну терапію з 0,1 % розчином гіалуронової кислоти двічі на день, курс лікування 12–16 сеансів. Кінцевими точками дослідження були: покращення показників якості життя, досягнення пацієнтами стану суб'єктивного здоров'я, розвитком реакцій спокійної та підвищеної активації, зменшення строків тимчасової непрацездатності хворих із синдром післяінфекційної кашльової гіперчутливості. *Результати.* У всіх пацієнтів основної групи ($p < 0,001$) досягнута повна ремісія синдрому післяінфекційної кашльової гіперчутливості, із зникненням клінічних проявів, розвитком реакцій спокійної та підвищеної активації адаптаційних систем організму. В 52 % осіб групи порівняння ($p < 0,01$) відзначалось зменшення клінічних ознак захворювання на тлі стресу, переактивації чи неповноцінної адаптації, що відповідало неповній ремісії. *Висновки.* Раціональна комбінація медикаментозних препаратів та небулайзерний спосіб введення гіалуронової кислоти дозволяє в короткі строки усунути симптоми захворювання, відновити якість життя пацієнтів, досягти повної ремісії синдрому післяінфекційної кашльової гіперчутливості.

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СОВРЕМЕННЫЕ АСПЕКТИ ДИАГНОСТИКИ И ЛЕЧЕНИЯ СИНДРОМА ПОСТИНФЕКЦИОННОЙ КАШЛЕВОЙ ГИПЕРЧУВСТВИТЕЛЬНОСТИ

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Резюме. *Актуальность проблемы.* Поиск новых методов лечения синдрома постинфекционной кашлевой гиперчувствительности является актуальной проблемой практической медицины. *Цель:* оптимизировать лечение больных с синдромом постинфекционной кашлевой гиперчувствительности. *Материалы и методы.* Обследовано 66 больных с синдромом постинфекционной кашлевой гиперчувствительности. Всем пациентам назначались противокашлевые средства. Больные основной группы (n = 33), получали дополнительно небулайзерную терапию с 0,1 % раствором гиалуроновой кислоти дважды в день, курс лечения 12–16 сеансов. Конечными точками исследования были: улучшение показателей качества жизни, достижение пациентами состояния субъективного здоровья, развитие реакций спокойной и повышенной активации, уменьшение сроков временной нетрудоспособности больных с синдромом постинфекционной кашлевой гиперчувствительности. *Результаты:* У всех пациентов основной группы ($p < 0,001$) достигнута полная ремиссия синдрома постинфекционной кашлевой гиперчувствительности, с исчезновением клинических проявлений, развитием реакций спокойной и повышенной активации адаптационных систем организма. У 52 % лиц группы сравнения ($p < 0,01$) отмечалось уменьшение клинических симптомов заболевания на фоне стресса, переактивации или неполноценной адаптации, что соответствовало неполной ремиссии. *Выводы.* Рациональная комбинация медикаментозных препаратов и небулайзерный способ введения гиалуроновой кислоты позволяет в короткие сроки устранить симптомы заболевания, восстановить качество жизни пациентов, достичь полной ремиссии синдрома постинфекционной кашлевой гиперчувствительности.

Ключевые слова: синдром постинфекционной кашлевой гиперчувствительности, адаптационные реакции организма, небулайзерна терапия, гиалуроновая кислота.

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