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Antiviral therapy at treating patients with virus-induced asthma exacerbations

Key words: *asthma, virus-induced exacerbations, vitaglutam.*

Bronhial asthma (BA) – a chronic inflammatory disease of the airways, accompanied by their increased sensitivity to external and internal stimuli and manifests recurring bouts of breathlessness. This disease is one of the most common chronic respiratory diseases. The development of asthma is associated in recent years with a special type of inflammation in the bronchi, which results in dramatically increased their sensitivity, there is a reduction of bronchial muscles (bronchospasm), swelling of the bronchial mucosa, excessive formation of thick secretions (sputum), these processes and determine the development of asthma attack (an asthma attack).

Today on asthma suffers significant number of people in the world, leading to prolonged disability and disability population. The number of patients diagnosed with «asthma « is rapidly increasing as the number of deaths due to this disease [1].

According to numerous clinical studies found that the severity of the disease and a significant number of deaths in asthma is primarily due to the untimely and inadequate medical care during acute illness.

Exacerbations of asthma – an episode of progressive difficulty with the reduction of breath, coughing, wheezing, tightness of the chest, or a combination of these symptoms, characterized by a decrease in expiratory airflow [1, 2].

Currently actually found that the flare is caused by exposure to irritant factors (infection, environmental factors, multiple pollutants) and / or lack of basic treatment.

However, in recent years, the occurrence of asthma and its exacerbation associated with episodes of acute respiratory viral infections (ARVI) and the complex interaction of genetic predisposition and environmental factors. But of particular importance is given to respiratory infections, including viral, which plays an important role in the implementation of environmental influences on the development of asthma and its exacerbation [3, 4]. This connection is based on the results of many epidemiological studies. ARVI is not less than half of all acute diseases. In addition, each person within one year repeatedly ill with acute respiratory disease, because the role and importance of ARVI in the occurrence of asthma exacerbations double. Evident link between the seasonal rise in the incidence of ARVI and frequency of hospitalizations due to exacerbation of asthma. This is most clearly manifested in children but also for adults and characterized [7]. Several clinical and epidemiological studies suggest that approximately 80–85 % of all cases of asthma exacerbations in children and 60–75 % – in adults, as are the main triggers respiratory viruses [7, 8]. These viruses are among the main factors that are able to indirectly cause airway obstruction [9-11]. Clare S. Murray and colleagues suggest that the cause of the exacerbation of asthma in adults and older children are often rhinoviruses – up to 80 %, 15 % – influenza viruses, in 4 % – enteroviruses and metapnevmovirus, RS-virus – 2 % of all virus-induced exacerbations. Also, the cause of bronchial obstruction may adenovirus, parainfluenza virus types 1-3, coronaviruses, enteroviruses [4].

ARVI not only is the trigger of asthma exacerbation, but also affect the course, complicates and prolongs it. In patients with asthma with symptoms of ARVI are watching more severe degree of ventilatory lung function. Unfortunately, found a direct link between viral infection and fatal disease due to its aggravation, particularly in cases where the patient does not receive the necessary treatment [5–9].

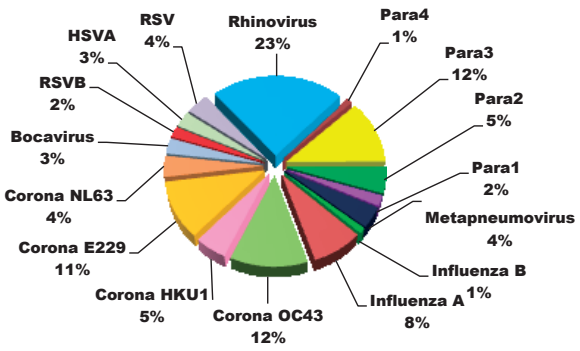

Figure 1. **Frequency of viral pathogens in adult patients with ARVI. (Garbino J et al.).**

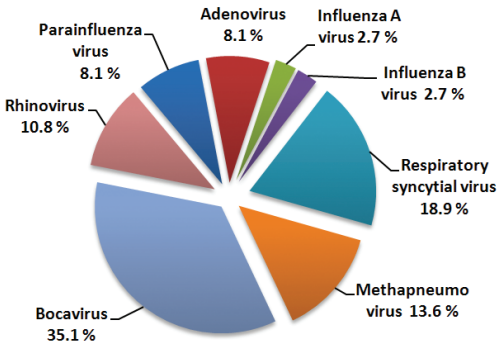

Figure 2. **The spectrum of viral pathogens in children during acute asthma (%) (Dziublyk I. et al.)**

It is noted that most often in patients with ARVI coronavirus found older (32,3 %), rhinovirus (22,6 %), parainfluenza viruses (19,5 %), influenza (9,7 %), respiratory syncytial virus (8,6 %), human metapnevmovirus (4,2 %) and bokavirus (3,1 %) (Fig. 1) [12].

The prevalence and severity of lesions significantly vary respiratory viruses in different age groups. Thus, according to Dziublyk I. V. et al, viral pathogens in children with acute exacerbation of asthma were found in (72,5 ± 3,8) % of patients [13]. The greatest etiological importance among them had bokavirus – in 35,1 % of cases. Most often found PC virus – in 18,9 % of cases, metapnevmovirus – 13,6 %, rhinovirus – 10,8 %, parainfluenza and adenovirus – 8,1 % each, influenza A and B – 5,4 % of cases (Fig. 2).

The negative role of viral agents in the development and exacerbation of asthma is unconditional, but the question of diagnosis, treatment and prevention of virus-induced exacerbation of asthma is not completely solved until now [3, 5, 9]. The cause across a wide variety of respiratory viruses (over 200 species). Therefore, there are great difficulties in the way of verification, identification of features of pathogenesis, the limited arsenal of antiviral drugs with proven clinical efficacy with respect to respiratory pathogens, etc. [1–3]. All these factors explain the lack of information on national and international guidelines for diagnosis and treatment of virus -induced asthma exacerbation [3, 5, 9, 10].

National and international guidelines recommend taking reasonable basis for treating patients with asthma and its exacerbation of anti-inflammatory drugs (particularly inhaled glucocorticosteroids (GCS)) in combination with bronchodilators (inhaled β_2-agonists, short or long-acting), theophylline, leukotriene modifiers, etc. [1, 2]. The amount of therapeutic measures is determined only by the degree of severity of asthma and its exacerbation, without etiological factors. In the presence of an infectious etiology of asthma exacerbation, this approach can extend, reduce the effectiveness of treatment, condition of complications. These circumstances require us to find new therapeutic solutions issue of treating patients with viral exacerbation of asthma [9].

Modern approach to the treatment of patients with acute exacerbation of asthma associated with ARVI should be determined by the peculiarities of the impact of viral infection on the patient. On the one hand, this suppressive effect on the immune system that promotes adherence of the bacterial flora on the other - reducing the resistance of the organism as a whole. In this regard, the combined therapy along with increased baseline asthma therapy according to the severity of the course (adequate doses of corticosteroids, bronchodilators, expectorants, etc.) may be included antiviral, immunomodulatory medications, and the presence of «mixed infection» – antibiotics [1–4].

Despite the availability of new high chemotherapy with proven antiviral activity of efficacy and safety in patients with an infection, including virus - induced acute exacerbation of asthma remains uncertain. For optimal use advanced local data required by the spectrum of viral pathogens and the role of individual etiopatoheniv in aggravation of asthma, determining the characteristics, efficiency and safety of antiviral drugs in the treatment of these patients.

The aim – to set the frequency and spectrum of viral pathogens in exacerbations of asthma and to examine the effectiveness and safety of antiviral drug vitahlutam in treatment of these patients.

Materials and methods

According to the protocol is the only prospective, comparative (in two parallel groups) randomized phase IV study examined 167 patients with infectious exacerbation of asthma. Dates of study: January 2011 – December 2013.

All patients had clinical signs of ARVI. All patients were diagnosed with asthma and taking adequate basic therapy during the last 3 months. Patients only if they voluntarily consent to the objectives and scope of the planned surveys and signing their informed consent to participate in the study.

The study did not include patients with severe, decompensated or unstable somatic pathology, which worsened prognosis or threatened the life of the patient. Patients with complicated course of the underlying disease as a bacterial infection of the respiratory tract (pneumonia), which was determined by clinical and/or laboratory, the study was not included. Also did not include patients who are at the beginning of the observation taking any antiviral (including drugs interferon or interferon inducers) and/or antibiotics that had a history of allergic reaction to the study medication. The study did not include patients who have since the first signs of exacerbation of asthma have been more than 10 days.

According to these criteria, the study included 167 patients with acute exacerbation of asthma: 77 (46,1 %) men and 90 (53,9 %) of women aged 19-76 years (mean age – (48, 2 ± 1,3) years) who examined and treated on an outpatient or

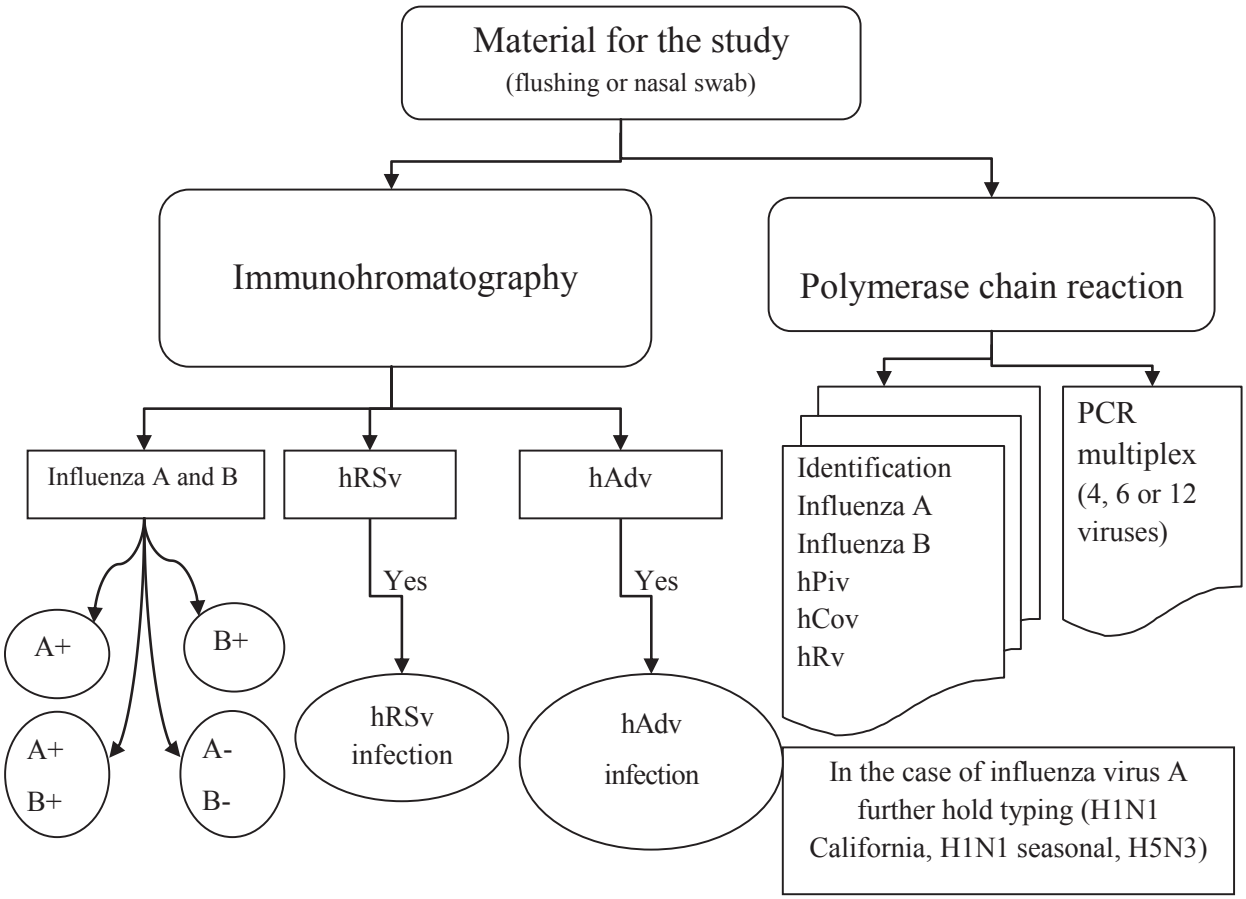

Figure 3. **Algorithm for laboratory diagnosis of viral pathogens in patients with virus-induced asthma exacerbation**

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Assess overall clinical and instrumental signs of asthma exacerbation was performed at the beginning of the observation (visit 1), 2-3 days (visit 2), 7-10 (visit 3) and 20-22 days (visit 4). The work was carried out at the expense of the state budget.

At visit 1 and subsequent phases of observation for all patients surveyed spirometry. In the presence of clinically significant disorders, all patients underwent complete blood count, urinalysis, blood biochemistry, and X-ray examination of the chest and ECG.

To identify the major viral agents of infectious exacerbation of asthma all patients underwent virological studies of biological material (smears of the mucosa of the nasal cavity). The material selected in the earliest periods of onset in most cases no later than 2 days. The study material was conducted at the Department of Virology, National Medical Academy of Postgraduate Education named after P. L. Shupik, with the head of department Dziublyk I. V.

To determine the frequency of detection of viral ethiopathgens, and installation of the spectrum, we have developed laboratory diagnostic algorithm, which was to use modern immunohromatography "rapid tests" in combination with molecular (polymerase chain reaction (PCR)) diagnosis (Fig. 3).

To study the spectrum of viral pathogens, we used a number of different modifications of the method of polymerase chain reaction, including PCR hybridization, PCR multiplex and polymerase chain reaction in real time (PCR-FRT). Multiplex, multipraimer polymerase chain reaction – a polymerase chain reaction, which simultaneously use more than one pair of oligonucleotide primers, resulting in several coamplification DNA templates. Extraction of DNA/RNA from biological material investigated and reverse transcription was performed using a set of reagents fish – prep «AmpliSens® SARS-screen-FL", FBUN CRIM production of. For the analysis and interpretation of results was used modern appliance for PSR-FRT Rotor-Gene Q (QIAGEN), production of Germany.

This method was chosen by us for reasons of saving time during diagnosis (rapid identification) and screened once a wide range of viral pathogens, which allowed both to detect in real time from 2 to 6 independent reactions [14, 15]. This method makes it simple job gives her the opportunity to spend the minimum amount of time with is the «gold standard «of diagnosis with high sensitivity.

The study used a system based on multiplex PSR-FRT identification human Respiratory Syncytial virus – hRSv, Influenza A and B, human Metapneumovirus – hMpv, human Parainfluenzavirus – 1-4-hPiv, human Coronavirus – hCov, human Rhinovirus – hRv, human Adenovirus B, C, E – hAdv and human Bocavirus – hBov.

For rapid diagnosis of influenza A and B, adenovirus and RS virus using simple/rapid tests "CITO TEST INFLUENZA A & B" (Pharmasco, Ukraine) and "CERTEST RSV-

ADENO RESP BLISER TEST" (SerTest, Spain). At the heart of the action is the method of immunoassay – specific interaction of antigens and antibodies on the membrane chromatographic test after drawing it up the prepared test sample from the patient. The material for the study was used to swab the mucosa of the nasal cavity.

The basis of drug therapy 66 patients with acute exacerbation of asthma (1-st group patients) according to the recommendations given in the order of Ministry of Health of Ukraine № 128 of 19.03.2007, were anti-inflammatory medications (inhaled and systemic corticosteroids) in combination with bronchodilators (β_2-agonists anticholinergic and short- or long-acting), xanthine, mucolytic, mukorehulyatory. The amount of therapeutic interventions, the route of administration of drugs (inhaled, oral or parenteral) and mode of treatment (outpatient, inpatient), determined based on the severity of the exacerbation and response to treatment.

The structure of group 2 included 63 patients who in addition to primary treatment prescribed antiviral drug for systemic effects vitahlutam (imidazoliletanamid pentandin acid) orally at a dose of 90 mg 1 time per day. Duration of antiviral therapy was 5 days in all cases it was empirical (designed before the results of virological studies).

Vitaglutam – a new antiviral drug effective against influenza virus type A (A/H1N1, including A (H1N1) pdm09, A/H3N2, A/H5N1) and type B, adenovirus infection, parainfluenza, respiratory syncytial virus infection. In experiments in vitro and in vivo it effectively inhibits the reproduction and cytopathic effect of the virus. The drug has a unique mechanism of action. It increases the sensitivity of cells to external signals by increasing the synthesis of interferon cell receptor (IFNAR1, IFNAR2); the virus infected cells in the presence vitahlutam induce virus status (activated Stat-1, pPKR, IRF3, IRF7 and MxA protein) or become targets for lymphocyte activated immunocompetent cells [17]. The ability to effectively recover vitahlutam immune response selectively in infected cells explains the clinical efficacy. The drug is not metabolized and is excreted unchanged in the intestine (77,0 %) and kidneys (23,0 %). Therapeutic efficacy and safety of the drug demonstrated in several clinical studies [16]. Experimental toxicological studies indicate low toxicity and high safety profile of the drug (LD 50 greater than the therapeutic dose of > 3000 times). The drug is not mutagenic, immunotoxic, allergic and carcinogenic properties, does not locally irritating action. It has no effect on reproductive function does not embryotoxical and teratogenic effects.

Clinical efficacy of treatment was determined by the analysis of complex functional and clinical laboratory parameters with regard to the criteria set out in the European manual on clinical evaluation of antimicrobial drugs. Clinically effective treatment considered if, after completion of the study completely disappeared (recovery) symptoms and functional features of acute disease or significantly decreased (improved) their severity.

Safety of treatment was assessed by incidence of adverse events and their severity and occurrence of clinically significant changes in laboratory parameters. Junk considered any adverse event (including clinically significant laboratory values deviation), which emerged in the patient during the clinical trial, regardless of whether it is associated with taking the drug study or not.

Results and discussion

Intermittent asthma was diagnosed in 15,6 % of patients, persistent – in 84,4 % (mild course – in 23,4 % of patients, moderate – in 66,5 %, severe course – 10,2 %). According to the ACT test during the test prevailed partly controlled patients (62,9 % of patients) or uncontrolled (20,9 %) of asthma at the beginning of the exacerbation. Full control of asthma was established only in 16,2 % of patients. According to clinical and functional and instrumental signs of exacerbation severity of mild severity of the current exacerbation was diagnosed in 36,5 % of patients, moderate severity – in 58,7 % and severe degree – 4,8 %.

According to virological examination in 116 adult patients 60 ((51, 7 ± 4, 6) %) of them were identified viral pathogens. Using PCR identified 60 strains of the virus. The method IA (rapid tests "Influenza virus A + B", "RS-virus + Adenovirus") found 11 strains. The greatest etiological importance among viral infectious exacerbation of asthma had rhinovirus – in 55.0 % of cases. Most often found bokavirus – in 10,0 % of cases, metapnevmovirus – 8.3 %, respiratory syncytial virus – in 6,7 % of cases, influenza virus A and B – in 5,0% each; coronavirus – 3,4 % of cases, adenovirus and parainfluenza virus – in 3,3 % of cases each (Table 1, Fig. 4).

The frequency of viral pathogens significantly dependent on the duration of the examination of patients. In the first three days of the beginning of the exacerbation, the frequency of detection of viral pathogens accounted for (64, 4 ± 5,6) %, which was significantly ($p < 0,05$). More positive results of virological studies were obtained on days 4-7 aggravation – (40,6 ± 8,7) %, and 8 days after viral pathogens were detected (Table 2). In patients with acute exacerbation of asthma viral pathogens detected mainly in the winter-spring season in December-February – with 32,7 % of the examined patients in March-May – at 45,5 %, which generally coincide with seasonal acute respiratory disease caused by these pathogens.

The assessment of general condition and clinical and instrumental signs of asthma exacerbation in the early follow-up (visit 1) were not significant differences ($p < 0,05$), indicating that the comparability of the two groups of the study (Table 3).

In the course of treatment (visits 2 and 3) was marked by the disappearance of the positive dynamics of clinical manifestations in a timely manner. Intoxication and catarrhal symptoms in patients in group 2 compared with those of the 1st - significant ($p < 0,05$) decrease in the number of patients with fever ((77,3 ± 5,2) % and (87,3 ± 4,2) %, respectively), muscle pain and 0 % (1,5 ± 1,5) %, hyperemia of the conjunctiva and mucous membranes, labored nasal breathing, cough, and more. However, significant decrease of bronchial obstruction in both groups not mentioned – dry rales on auscultation (diffuse or isolated during forced expiration) listened in 28,8 % of patients with 1st and 20,6 % – in group 2.

The results of the analysis of clinical parameters functional late follow-up (visit 4) showed that the therapy has contributed to the achievement of positive results in both groups of comparison, all sick 1st and 2nd group was significantly

Table 1

Frequency identification of viral etiopatoheniv an exacerbation of asthma (according to the methods of multiplex PCR and immunoassay), %

Virus	No. of strains identified using		Prevalence	
	Multiplex PCR	"Rapid tests"	among patients, % (n = 116)	Among strains of viruses, % (n = 60)
Adenovirus	2	2	1,7 ± 1,2	3,3 ± 2,3
Bocavirus	6	—	5,2 ± 2,1	10,0 ± 3,9
Rhinovirus	33	—	28,5 ± 4,2	55,0 ± 6,4
- Rhinovirus 1	—	—	—	—
- Rhinovirus 2	—	—	—	—
- Rhinovirus 3	—	—	—	—
- Rhinovirus 4	1	—	0,9 ± 0,9	1,7 ± 1,7
Respiratory syncytial virus	4	3	3,5 ± 1,7	6,7 ± 3,2
Methapneumovirus	5	—	4,3 ± 1,9	8,3 ± 3,6
Corona virus	2	—	1,7 ± 1,2	3,4 ± 2,3
- Corona virus WL-63229E	1	—	0,9 ± 0,9	1,7 ± 1,7
- Corona virus НКИ-1ОС-42	1	—	0,9 ± 0,9	1,7 ± 1,7
Influenza A virus	3	3	2,6 ± 1,5	5,0 ± 2,8
Influenza B virus	3	3	2,6 ± 1,5	5,0 ± 2,8
Parainfluenza virus	2	—	1,7 ± 1,2	3,3 ± 2,3
- Human Parainfluenza virus 1	—	—	—	—
- Human Parainfluenza virus 2	—	—	—	—
- Human Parainfluenza virus 3	2	—	1,7 ± 1,2	3,3 ± 2,3
Total	60	11	51,7 ± 4,6	100,0

($p < 0,05$) improved general condition and increased level of physical activity, decreased clinical signs of bronchial obstruction (no auscultatory manifestations of bronchial obstruction was observed in 66,7 % of patients with 1st and 82,5 % – in group 2 reduced the frequency of daytime and/or nighttime symptoms of (2,3 ± 0, 1) to (0,1 ± 0,5) episodes per day in patients of the 1st group and (1,9 ± 0,2) to (0,1 ± 0,6) episodes per day in patients group 2, the need for emergency medications (with (3,3 ± 0,2) to (0,3 ± 0,5) times daily in patients of the 1st group and (3,3 ± 0,2) to (0,2 ± 0,7) times

Table 2

The frequency of viral pathogens exacerbation of asthma, depending on the period of examination of patients, (M ± m), % of patients

Term examination of patients from the beginning of exacerbation of BA, days	The number of patients examined of exacerbation of BA, (n = 116)	The number of patients who have high viral pathogen (n = 60)	The frequency of viral pathogens of exacerbation of BA
1 – 3	73	47	64,4 ± 5,6 *
4 – 7	32	13	40,6 ± 8,7 *
8 and more	11	0	0

* – Significant differences between the performance of groups of observation ($p < 0,05$).

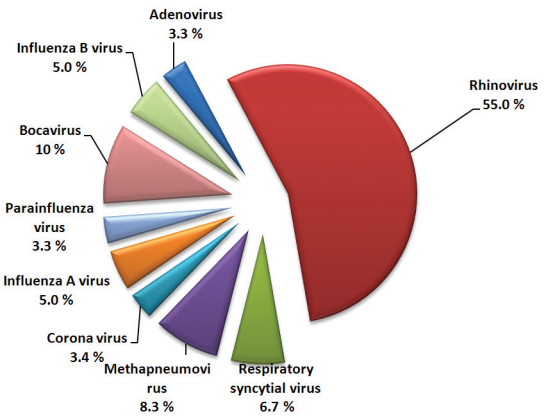

Figure 4. **The frequency of viral pathogens in patients with acute exacerbation of asthma**

Table 3

Clinical characteristics of patients with infectious exacerbation of asthma before treatment (at first visit).

Index	Group of patients	
	1 (n = 66)	2 (n = 63)
1	2	3
General condition, % of patients:		
- satisfactory	56,1 ± 6,1	39,7 ± 6,2
- moderate	43,9 ± 6,1	60,3 ± 6,2
- hard	0	0
Consciousness % of patients:		
- not broken	92,4 ± 3,3	98,4 ± 1,6
- excitation	7,6 ± 3,3	1,6 ± 1,6
- confusion	0	0
Dyspnea % of patients:		
- no	51,5 ± 6,2	46,0 ± 6,3
- with the usual physical activity	19,7 ± 4,9	34,9 ± 6,0
- with little physical exertion	25,8 ± 5,4	15,9 ± 4,6
- dormant	3,0 ± 2,1	3,2 ± 2,2
Coughing % of patients:		
- not available	0	0
- small	22,7 ± 5,2	30,2 ± 5,8
- moderate	54,5 ± 6,1	55,6 ± 6,3
- strong	22,7 ± 5,2	14,3 ± 4,4
Number of sputum % of patients:		
- no	33,3 ± 5,8	28,6 ± 5,7
- less than 30 ml	45,5 ± 6,1	47,6 ± 6,3
- 30-50 ml	21,2 ± 5,0	23,8 ± 5,4
- 50-100 ml	0	0
- 100 ml	0	0
The character of sputum% of patients:		
- no	33,3 ± 5,8	36,5 ± 6,1
- mucous	45,5 ± 6,1	39,7 ± 6,2
- mucopurulent	16,7 ± 4,6	22,2 ± 5,2
- purulent	4,5 ± 2,6	1,6 ± 1,6
- bloody	0	0
Profuse sweating, % of patients	54,5 ± 6,1	68,3 ± 5,9
Weakness, % of patients	54,5 ± 6,1	46,0 ± 6,3
Photophobia,% of patients	42,4 ± 6,1	38,1 ± 6,1
Joint and muscle pain,% of patients	45,5 ± 6,1	41,3 ± 6,2
Headache,% of patients	57,6 ± 6,1	68,3 ± 5,9
Hyperemia soft palate and the posterior wall of the pharynx,% of patients	87,9 ± 4,0	90,5 ± 3,7
Conjunctival hyperemia,% of patients	80,3 ± 4,9	82,5 ± 4,8
Difficulty in nasal breathing,% of patients	87,9 ± 4,0	82,5 ± 4,8
Participation in the assisted breathing muscles,% of patients:		
- no	81,8 ± 4,7	90,5 ± 3,7
- ordinar	18,2 ± 4,7	9,5 ± 3,7
- paradoxical muscles reaction	0	0
Auscultation data,% of patients:		
- isolated on forced expiratory	12,1 ± 4,0	11,1 ± 4,0
- diffuse dry rales	78,8 ± 5,0	84,1 ± 4,6
- moist rales	9,1 ± 3,5	4,8 ± 2,7
- no wheezing	0	0
Body temperature,% of patients:		
- less than 37 ° C	21,2 ± 5,0	15,9 ± 4,6
- 37 - 38 ° C	63,6 ± 5,9	76,2 ± 5,4
- more than 38 ° C	15,2 ± 4,4	7,9 ± 3,4
Respiration rate (1 min.),% Of patients:		
- less than 20	40,9 ± 6,1	34,9 ± 6,0
- 20 - 24	53,0 ± 6,1	60,3 ± 6,2
- 25 - 30	6,1 ± 2,9	4,8 ± 2,7
- more than 30	0	0
Blood pressure (mmHg. Cent.),% Of patients:		
- normotony	69,7 ± 5,7	66,7 ± 5,9
- hypertension (> 150/90)	24,2 ± 5,3	27,0 ± 5,6
- hypotension (<100/60)	6,1 ± 2,9	6,3 ± 3,1
Heart rate (60 s.), % Of patients:		
- 60 – 90	78,8 ± 5,0	87,3 ± 4,2
- tachycardia (more than 100)	21,2 ± 5,0	12,7 ± 4,2
- bradycardia (less than 60)	0	0
Limit activity,% of patients	95,5 ± 2,6	93,7 ± 3,1
Daytime symptoms, the number of daily	2,6 ± 0,2	2,8 ± 0,2
Nocturnal symptoms and / or awakening about asthma, the number of daily	2,3 ± 0,1	1,9 ± 0,2
The use of bronchodilators as needed for the number of days	3,5 ± 0,3	3,3 ± 0,2
Sp O_2, %	96,1 ± 0,2	95,8 ± 0,2

Note: significant differences between groups of observations were found ($p < 0,05$).

for patients in group 2). The average duration of catarrhal and intoxication syndromes, duration of asthma exacerbation was significantly shorter ($p < 0,05$) in the group of patients treated in the adjuvant therapy vitaglutam.

Exacerbations of asthma completely cured in (80,0 ± 5,4) % of patients of the 1st group and (85,4 ± 5,5) % – 2nd, improvement was achieved in (20,0 ± 5,4) % and (14,6 ± 5,5) % of cases, respectively.

Patients in group 2 premature discontinuation due to poor compliance and the development of adverse reactions, including toxic- allergic, no.

The therapy clinical signs of bacterial complications (appearance of purulent sputum and increased its number on the background of preservation fever, confirmed by laboratory data developed in (21,2 ± 5,0) % of patients of the 1st group and (6,4 ± 3,1) % 2nd, requiring the appointment of antimicrobials and extension of treatment.

Thus, as a result of examination of patients with infectious exacerbation of asthma viral agents were found in 51,7 % of patients, which confirms the leading role in the development of ethiopatogen exacerbation of asthma. Patients diagnosed with a viral pathogen predominantly rhinovirus (55% of cases).

The results of vitahlutam in the adjuvant treatment of virus -associated asthma exacerbation demonstrate the efficiency and safety of the drug. Therapeutic efficacy was authentic reduction (on average 1-2 days) period of fever reducing the symptoms and duration of symptoms of intoxication, the catarrhal symptoms, and reducing the incidence of bacterial complications in 14,8 %.

So vitahlutam can be recommended for appointment as a component of adjuvant therapy for the treatment of virus-induced exacerbation of asthma, especially in the first 36 hours after onset of exacerbation.

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ПРОТИВОВИРУСНАЯ ТЕРАПИЯ ПРИ ЛЕЧЕНИИ БОЛЬНЫХ С ВИРУС-ИНДУЦИРУВАННЫМ ОБОСТРЕНИЕМ БРОНХИАЛЬНОЙ АСТМЫ

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Цель исследования: *изучить эффективность и безопасность противовирусного препарата витаглутам в комплексном лечении больных с вирус-индуцированным обострением бронхиальной астмы (БА).*

Материалы и методы исследования. *167 больных с обострением БА вирусной этиологии (77 (46,1 %) мужчин и 90 (53,9 %) женщин в возрасте 19–76 лет (средний возраст – (48,2 ± 1,3) года) были поделены на две группы. Пациентам 1-й группы (n = 66) терапия обострения БА проводилась согласно требованиям приказа МЗ Украины от 19.03.2007 г. № 128. Пациентам 2-й группы (n = 63) дополнительно назначали противовирусный препарат витаглутам перорально в дозе 90 мг 1 раз в сутки на протяжении 5 дней. Противовирусная терапия во всех случаях была эмпирической, а объем терапевтических мероприятий и пути введения препаратов определяли по степени тяжести обострения. Оценку общего состояния больных и оценку клинико-функциональных признаков обострения БА в группах сравнения проводили в начале наблюдения (визит 1), через 2-3 дня (визит 2), на 7-10-й (визит 3) и 20-22-й (визит 4) дни. Работа проведена на средства госбюджета.*

Результаты исследования. *По данным вирусологического обследования 116 взрослых пациентов у 60 ((51,7 ± 4,6) %) из них обнаружены вирусные возбудители. Наибольшую этиопатогенетическую значимость в индукции обострения БА продемонстрировал риновирус – в 55,0 % случаев. Значительно реже выявлялся бокавирус – в 10,0 % случаев, метапневмовирус – 8,3 %, респираторно-синцитиальный*

вирус – 6,7 %, вирусы гриппа А и В – 5,0 % каждый, коронавирус – 3,4 %, аденовирус и вирус парагриппа – 3,3 % каждый. В процессе лечения (на 2-м и 3-м визитах) у пациентов 2-й группы наблюдалась более высокая (в среднем на 1–2 дня) позитивная динамика исчезновения клинических проявлений интоксикации и катаральных симптомов. У больных 2-й группы было зафиксировано достоверно меньшее (на 14,8 %) количество бактериальных осложнений. Витаглутам хорошо переносился пациентами.

Выводы. *Сочетание базисной терапии обострений БА вирусной этиологии с эмпирическим приемом витаглутама позволяет уменьшить проявления интоксикации и катаральные явления, сократить длительность их проявления и уменьшить количество бактериальных осложнений.*

Ключевые слова: *бронхиальная астма, вирус-индуцированное обострение, витаглутам.*

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THE ANTIVIRAL THERAPY IN CASES OF VIRUS-INDUCED EXACERBATIONS OF BRONCHIAL ASTHMA

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Objective: *to study the effectiveness and safety of antiviral drug vitaglutam in treatment of patients with virus-induced acute exacerbation of bronchial asthma.*

Materials and Methods: *167 patients with acute exacerbation of asthma viral etiology (77 (46.1 %) men and 90 (53.9 %) of women aged 19–76 years (mean age – (48.2 ± 1.3) years). The first group included 66 patients who underwent treatment of asthma exacerbation as required by the order of Ministry of Health of Ukraine № 128 of 19.03.2007 year. Patients in group 2 – 63 people further prescribed antiviral drug vitaglutam orally at a dose of 90 mg 1 per day for 5 days. In all cases, antiviral therapy was empirical, and the volume of therapeutic interventions and routes of administration of drugs was determined by the severity of the exacerbation. Evaluation of the general condition of patients and clinical and functional features of asthma exacerbation group comparisons were carried out at the beginning of the observation (visit 1), 2–3 days (visit 2), 7–10 (visit 3) and 20–22 days (visit 4). This study completed by the state budget.*

Results. *According to virological examination in 116 patients 60 ((51.7 ± 4.6)%) of them were identified viral pathogens. The greatest etiological importance among viral infectious exacerbation of asthma had rhinovirus – in 55.0 % of cases. Most often found bokavirus – in 10.0 % of cases, metapnevmovirus – 8.3 %, respiratory syncytial virus – in 6.7 % of cases, influenza virus A and B – in 5.0 % each; coronavirus – 3.4 % of cases, adenovirus and parainfluenza virus – in 3.3 % of cases each. In the course of treatment (at 2 and 3 visit) in patients in group 2 was observed faster (on average 1–2 days) disappearance of the positive dynamics of clinical manifestations of intoxication and catarrhal symptoms – a significant reduction in the number of patients with fever, head and muscle pain, hyperemia of the conjunctiva and mucous membranes, labored nasal breathing, cough, and more. Patients in group 2 was recorded significantly lower (14.8 %) the number of bacterial complications. Vitaglutam well tolerated.*

Conclusions: *The combination vitaglutam with basic treatment of asthma exacerbation viral etiology can reduce the signs of intoxication and catarrhal phenomena, reduce their duration and reduce bacterial complications.*

Key words: *asthma, virus-induced exacerbations, vitaglutam.*

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