

**CHOICE OF CORTICOSTEROIDS FOR THE MANAGEMENT OF ACUTE RHINOSINUSITIS:
MARKETING AND PHARMACOECONOMIC ASSESSMENT OF THE MODERN MARKET***Solomko D.**Otorhinolaryngologist**PhD student in the Department of**Pharmacology and Clinical Pharmacology**Solomko Yu.**Otorhinolaryngologist**Velychko O.**Otorhinolaryngologist**Makarenko O.**Professor of the Department of Social Medicine,**Public Health and Health Management***Abstract**

The increase of the allergic rhinitis incidence is a pressing problem for large industrial cities. The literature data of the allergic rhinitis incidence in countries of Europe and Ukraine was analyzed. According to various authors allergic rhinitis was registered in 12-24% of the Russian Federation residents, 26-40% - in the USA, 24-32% - in France, 16% in the UK, and 19% in Denmark. Three main clinical forms of the allergic rhinitis were distinguished: mild, moderate and severe. General pharmacotherapy principles of mild and moderate forms of allergic rhinitis are presented in the article. The medicines for first-line therapy of allergic rhinitis group "R01AD" were indicated - drugs acting on the respiratory system, decongestants and other drugs for topical use in diseases of the nasal cavity, corticosteroids. The assortment of nasal corticosteroids is presented by mometasone (13 trade names), beclomethasone (2 trade names), fluticasone propionate (5 trade names). It is also shown that 95.6% of the nasal corticosteroids are imported from 9 countries, mainly from India and Belgium. The Ukrainian spray Forinex produced by Pharmac is the only representative among the R01AD group, but according to the pricing range it is not a drug of choice among nasal corticosteroids. The data obtained indicate the risks of including only imported funds in the insurance list and a low replacement rate with the Ukrainian drug for patients with allergic rhinitis.

Keywords: allergic rhinitis, pharmacoeconomic assessment, nasal corticosteroids, pharmacotherapy.

Acute rhinosinusitis is one of the leading diseases of ENT organs. In the vast majority of cases, it is a complication of acute viral respiratory infection (AVRI). About 1 billion cases of viral respiratory tract infections are recorded in the world annually, about 6.5% of which are complicated by bacterial infection of the paranasal sinuses. According to various sources, sinusitis affects up to 12% of the population in Ukraine and up to 42% are patients with sinusitis among patients who are in ENT hospitals [7, 8]. The spectrum of infectious-inflammatory pathology of the paranasal sinuses of the nose and its mucous membranes includes sinusitis, frontitis, ethmoiditis and sphenoiditis, and in some cases they are observed in combination with inflammatory diseases of the lungs.

The prevalence of rhinosinusitis is not being decreased nowadays. Moreover, there is a tendency to increase the number of recurrent and chronic forms of the disease, frequency of orbital and intracranial complications development. The main clinical manifestations of these diseases – difficulties in nasal breathing, nasal discharge, sneezing, headache – reduce the quality of life of the patients [1].

The urgency of solving the problem of diagnosis and treatment of rhinosinusitis is also due to the fact that it goes far beyond otorhinolaryngology and is closely related to bronchopulmonary pathology, organism allergization and changes in local and humoral immunity. Rhinosinusitis often causes the development of chronic bronchitis, pneumonia, bronchial asthma, allergic rhinitis (AR), etc. [2].

Epidemiological studies in many European countries have shown that the incidence of allergic rhinitis has increased tenfold over the past decade [4]; the results of these studies indicate that 10-15% of the population suffer from AR in the developed countries. In this case, AR is more common in urban residents, which is associated with increased air pollution in metropolitan areas. It has been established that AR can provoke the development of other respiratory and ear diseases: in 24% of cases AR is a risk factor for acute and chronic otitis media, and in 28% of cases – risk of chronic rhinosinusitis [6].

Thus, the urgency of the problem of acute rhinosinusitis accompanied by allergic rhinitis management is determined by the high prevalence of this pathology, reduced quality of life, economic costs of treatment. In the complex pharmacotherapy approach of this syndrome complex the important role is played by local nasal corticosteroids, which are widely presented in the modern pharmaceutical market of Ukraine. The doctor and the patient have to choose effective and affordable drug that requires marketing and pharmacoeconomic evaluation.

The purpose of the study was to conduct a comparative marketing analysis of modern nasal corticosteroids and pharmacoeconomic evaluation of treatment of acute rhinosinusitis, accompanied by manifestations of allergic rhinitis according to the "cost minimization" methodology, taking into account the duration of treatment for 7 days.

Materials and methods of the study. A comparative analysis of published data on the pharmacodynamic features of the mechanism of action of nasal corticosteroids was performed, criteria for the effectiveness of treatment of acute rhinosinusitis were determined. A marketing analysis of the range of nasal corticosteroids used for the treatment of acute rhinosinusitis with specified prices as of January 2020 has been conducted (<http://www.ama.dp.ua/>). According to the “cost minimization” methodology, the pharmacoeconomic component of the use of nasal corticosteroids was determined [2].

Research results. Nasal corticosteroids are first-line drugs in patients with persistent low-grade AR, as well as moderate and severe disease. Nasal corticosteroids can be administered alone or in combination with antihistamines. They can achieve rapid relief of nasal breathing and stop the growth of pathogenic microorganisms in the mucous membranes. Proper and regular use of nasal corticosteroids reduces the severity of rhinological symptoms and improves the condition of the nasal mucosa. Numerous studies and meta-analyses have shown that nasal corticosteroids significantly outperform antihistamines and leukotriene receptor antagonists in the control of AR symptoms, including nasal obstruction and rhinorrhea. In addition, nasal corticosteroid therapy has been reported to improve ophthalmic and pulmonary symptoms in patients with concomitant asthma and allergic rhinoconjunctivitis. The most common side effects when using nasal corticosteroids are irritation and burning of the nasal mucosa [7].

One of the important stages of pharmacoeconomic evaluation of the use of medicines in various pathological conditions is the analysis of the range and structure of pharmaceutical market. Marketing analysis according to the anatomical – therapeutic and chemical classification of ATC has revealed 23 nasal corticosteroids used in the treatment of AR (<http://www.drlz.com.ua>), which are included in the group R - «Medicines acting on respiratory system» and constitute the group R01A – “Decongestants and other drugs for topical application for the diseases of nasal cavity”; R01AD – Corticosteroids.

In the study of characteristics of the range of nasal corticosteroids according to the composition of active substances distinguish derivatives of mometasone (13 trade representatives), beclomethasone (2 trade representatives), fluticasone propionate (5 trade representatives) and others. It has also been established that 95.6% of nasal corticosteroids are imported from the country of origin. Unfortunately, Ukraine has only one representative – FORINEX PJSC “Pharmac” with active substance mometasone 45eclome monohydrate. Imported medicines are represented by 9 producing countries, where India and Belgium have the leading position – by 17.4% of the total assortment (Fig. 2).

In the analysis of implementation and consumer demand among patients best-selling nasal corticosteroids were identified (Table 2). Also, this table presents data on the cost of a treatment course for the month according to the “cost minimization” methodology.

Table 2

Assortment of nasal corticosteroids

Trade name	Dose	Price	The cost of treatment course, UAH
<i>Beclomethasone</i>			
Beconase	50 mkg/dose, 180 доз	183,77	61,2
<i>Fluticasone</i>			
Avamis	27,5 mkg/dose, 120 doses	238,31	119,15
	27,5 mkg/dose, 30 doses	182,3	182,3
Nasofan	50 mkg/dose, 120 doses	455,9	227,9
<i>Mometasone</i>			
Allertec Naso	50 mkg/dose, 60 doses	175,3	175,3
	50 mkg/dose, 140 doses	211,12	90,48
Glenspray	50 mkg/dose, 120 doses	213,2	106,6
	50 mkg/dose, 60 doses	163,48	163,48
	50 mkg/dose, 150 doses	308,66	123,4
Nasonex Sinus	50 mkg/dose, 60 doses	281,75	281,75
	50 mkg/dose, 140 doses	406,38	174,16
Flix	50 mkg/dose, 140 doses	270,62	115,98
	50 mkg/dose, 70 doses	209,76	179,79
Forinex	50 mkg/dose, 140 doses	250,0	107,14

Thus, we have shown that there is a wide range of both – manufacturers and price levels among the nasal corticosteroids. More accessible today according to this site <http://www.ama.dp.ua/> is Allertec Naso 211,12 UAH, with a course of treatment for a month – 90,48 UAH. Ukrainian Forinex spray holds an intermediate position in terms of price for packaging – 250,0 and for the cost of treatment – 107,14 UAH.

Conclusion. Summarizing the information presented, it is established that Ukrainian market for drugs of the first line of allergic rhinitis treatment is represented by imported nasal corticosteroids (the leaders of representatives are the countries of India and Belgium for 17.4% of the total group assortment). Nasal corticosteroids are widely represented by active ingredients, namely, 45eclomethasone, fluticasone, mometasone

and combination agents, with a total of 23 trading positions in the market. The FORINEX, domestic spray produced by PHARMAC is the only representative of the R01AD group, but it is not a drug of choice among the nasal corticosteroids in terms of pricing and cost.

References

1. Bhandarkar N.D., Mace J.C., Smith T.L. The impact of osteitis on disease severity measures and quality of life outcomes in chronic rhinosinusitis / Int Forum Allergy Rhinol. 2011 Sep-Oct;1(5):372-8
2. Iqbal I.Z., Kao S.S., Ooi E.H. The role of biologics in chronic rhinosinusitis: a systematic review / Int Forum Allergy Rhinol. 2020 Feb;10(2):165-174
3. Hoffmans R., Wagemakers A., van Drunen C., Hellings P., Fokkens W. Acute and chronic rhinosinusitis and allergic rhinitis in relation to comorbidity, ethnicity and environment // PLoS One. 2018 Feb 5;13(2)
4. Massoth L., Anderson C., McKinney K.A. Asthma and Chronic Rhinosinusitis: Diagnosis and

Medical Management/ Med Sci (Basel). 2019 Mar 27;7(4)

5. Passali D., Bellussi L.M., Damiani V., Tosca M.A., Motta G., Ciprandi G. Chronic rhinosinusitis with nasal polyposis: the role of personalized and integrated medicine / Acta Biomed. 2020 Feb 17;91(1-S):11-18
6. Simoens S., Decramer M. A pharmacoeconomic review of the management of respiratory tract infections with moxifloxacin/ Expert Opin Pharmacother. 2008 Jul;9(10):1735-44.
7. Valera F.C., Endam L.M., Ibrahim B., Brochiero E., Desrosiers M.Y. Is there a role for regenerative medicine in chronic rhinosinusitis with nasal polyps? / Braz J Otorhinolaryngol. 2017 Jan - Feb;83(1):1-2.
8. Van Cromburggen K., Van Bruaene N., Holtappels G., Bachert C. Chronic sinusitis and rhinitis: further supported. Rhinology. 2001. Mar 2; 48(1): 54-

СОВРЕМЕННЫЕ ПОДХОДЫ К ЛЕЧЕНИЮ ОСТРЫХ ЯЗВ И ЭРОЗИЙ, ОСЛОЖНЕННЫХ ПЕРФОРАЦИЕЙ И КРОВОТЕЧЕНИЕМ

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MODERN APPROACHES TO THE TREATMENT OF ACUTE ULCERS AND EROSION COMPLICATED BY PERFORATION AND BLEEDING

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Аннотация

Проблемы, связанные с этиологией, патогенезом, клинической картиной, диагностикой, лечением и профилактикой острых эрозий и язв органов пищеварения у хирургических больных, обсуждаются на основе результатов комплексного обследования более 70 пациентов и информации в литературе. Предложен рациональный алгоритм лечения перфоративных язв, а также кровоточащих язв и эрозий, определены показания к операции и предложен новый основной этап при различных методах хирургического вмешательства при оперативном лечении перфоративных язв, а также кровоточащих язв и эрозий.

Abstract

The problems associated with the etiology, pathogenesis, clinical presentation, diagnosis, treatment and prevention of acute erosion and ulceration of the digestive organs in surgical patients are discussed based on the results of a comprehensive examination of more than 71 patients and information in the literature. A rational algorithm is proposed for the treatment of perforated ulcers, as well as bleeding ulcers and erosions, indications