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Marketing Research of the Regional Pharmaceutical Market for Enterosorbent Medicinal Drugs

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ABSTRACT

Background. Allergic diseases of various etiologies and pathogenesis, in terms of their spread and severity of consequences related to temporary disability, invalidation and mortality, both in Russia and abroad, are a significant public health problem. In this regard, the search for new technologies of medical care (pharmacotherapy schemes) for patients suffering from allergic diseases is an urgent scientific and practical task aimed at strengthening and preserving health and improving the quality of life of citizens. One of the relatively new directions for improving the medicinal therapy of patients with allergic pathologies is the use of medicinal drugs with enterosorbent effect.
Objective. The objective of the work was to conduct market research of the regional pharmaceutical market of enterosorbent medicinal drugs used for prevention and treatment of patients with allergic rhinitis.
Methods. The scientific and methodological apparatus of the research were the methods of content analysis of regulatory legal and reference documents governing the provision of medicines to the population, combined ABC-/VEN analysis of the range of enterosorbent medicinal drugs, sociological survey, documentary observation, grouping and comparison of the results obtained.
Findings. Using methods of content analysis and documentary surveillance, the range of enterosorbent medicines in circulation at the regional pharmaceutical market of Caucasian Spas has been determined, which included 9 international generic names, represented by 31 trade names in different dosage forms. The cost analysis of the range of enterosorbent medicinal drugs showed that they are within the acceptable price range for the majority of population (from 10 to 500 rubles) per package. Sales dynamics of enterosorbent medicinal drugs revealed seasonal peaks associated with regional natural and climatic features of the Caucasian Spas region. With the help of combined ABC-/VENN analysis and anonymous questionnaire of consumers the most demanded enterosorbent medicinal drugs used in complex therapy of allergic rhinitis have been identified.
Conclusions. The sufficient breadth of assortment filling of the regional pharmaceutical market with enterosorbent medicinal drugs has been established, which determined their physical availability. Price characteristics confirmed the economic availability of enterosorbent medicinal drugs for the population. Data on the dynamics of consumption of this group of medicinal drugs, allow planning the optimal level of commodity stocks for the period of exacerbation of allergic pathologies in the Caucasus Mineral Waters region. The nomenclature analysis has identified the most demanded enterosorbent medicinal drugs, which is important for planning and managing the pharmacy assortment in order to provide the most complete supply of patients with allergic rhinitis.

Keywords: allergic rhinitis, patients, enterosorbent medicinal drugs, assortment, questionnaires, marketing analysis

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INTRODUCTION

Statistical data show an annual increase in the incidence of allergic rhinitis in our country. The fundamental factor of allergic rhinitis morbidity is the seasonality of its spread, which is connected with the appearance of allergic reactions to domestic and food allergens, which are intensified during the flowering period of "dusty" plants [1]. According to medical statistics, every third resident of southern regions of Russia suffers from seasonal allergic rhinitis [2]. The danger of this nosology is connected with the possibility of transition to more severe chronic forms of the disease, in particular, bronchial asthma, the course and treatment of which are much heavier and more difficult for both the patient and the doctor [3, 4]. In this regard, it is advisable to carry out scientific research aimed at improving the treatment of patients with allergic rhinitis in order to improve their quality of life.

Modern pharmacotherapy for allergic rhinitis, in addition to blocking antihistamines (medicinal drugs) at the cellular level of hestamine H1-receptor, also includes the elimination of an allergen from the patient's body and suppressing the body's sensitivity to its sensitizing effect. The main medicinal drugs of choice, with a proven pathogenetic mechanism of allergens removal from the body, are enterosorbents [5, 6]. Treatment of patients with allergic diseases, including allergic rhinitis, is, as a rule, carried out in outpatient conditions using a wide range of enterosorbent medicinal drugs, which belong to

over-the-counter drugs and can be used without restrictions by patients of different age groups, including children [7, 8].
In connection with the above mentioned, the purpose of this work was determined as conducting marketing research of the regional pharmaceutical market of enterosorbent medicinal drugs used for prevention and treatment of patients with allergic rhinitis.

Literature Review

The analysis of scientific literature has shown that sufficient research is devoted to the issues of improving the organization of medical care for patients suffering from allergic diseases in Russia. These studies were carried out in the Krasnodar Keai (Yu.V. Khanin, 2008), Volgograd Region (A.M. Abramova, 2008), the Republic of Bashkortostan (L.A. Zotova, 2013). All these works were devoted to optimizing the supply of antihistamines to the population by developing new organizational and methodological approaches at the regional level. However, there have been no studies conducted so far in our country devoted to optimization of drug care for patients suffering from allergic rhinitis using enterosorbent medicinal drugs in the complex treatment of allergic diseases, which confirms the relevance of our study.

Methods

The scientific and methodological apparatus of the research were the methods of content analysis of regulatory legal and reference documents regulating drug provision to the population, combined ABC-/VEN analysis of the range of enterosorbent medicinal drugs, sociological survey, documentary observation, grouping and comparison of the obtained results. Microsoft Office software was used for data analysis and statistical processing.
The experimental part of the study was conducted on the basis of 145 pharmacy organizations of cities of the Caucasian Spas region: Georgievsk, Essentuki, Zheleznovodsk, Kislovodsk, Lermontov, Mineralnye Vody, Pyatigorsk. These cities are located in the south-east of the Stavropol Krai, the average distance from Pyatigorsk, as a center of research, to other cities in the region is 6 to 40 km. The population of the Caucasian Spas region is about one million people. Statistical data show that the annual incidence of allergic rhinitis among the population is about 0.348‰, or more than 340,000 cases in absolute terms.

Results

The assortment of enterosorbent medicinal drugs registered in Russia and used in the treatment of patients with allergic rhinitis in outpatient conditions and in circulation on the regional pharmaceutical market of the Caucasian Spas includes 9 international generic or grouped names, represented by 31 trade names in various dosage forms [9] (Table 1).

Table 1. Range of enterosorbent medicinal drugs used in the treatment of allergic rhinitis

International nonproprietary name / grouping name	Trade name
Ugol aktivirovannyi	Ugol aktivirovannyi 0.25 in a pill, No. 10 (30, 50) * pcs. in pack
	Carbopect 0.11 in a capsule, No. 20 (50) pcs. in pack
Polymethylsiloxane polyhydrate	Enterosgel, paste for ingestion, 22,5 g in a bag, #10 pcs. in a pack
	Enterosgel, paste for ingestion, 225 g in tuba
Colloidal silicon dioxide	Polysorb medicinal drug, powder for preparation of suspension for ingestion with 10 (25, 50) g in a pack
Amorphous silicon dioxide + Microcrystalline cellulose	Belyy ugol' 0.7 in a pill, No. 10 (24, 30) pcs. in pack
	Whitesorb 0.36 in pill No. 30 pcs. in pack
Hydrolytic lignin	Polyphepane, powder in bags of 10 (50, 100) g
	Polyphepane, pellets in bags (jars) of 50 (100, 200) g each
	Lactrofiltrum pills, No. 30 (60) pcs. in pack
	Filtrum STI 0.4 in a pill, No. 20 (60) pcs. in pack
Microcrystalline cellulose MKC (refers to the group of dietary supplements)	Microcrystalline cellulose MKC 0.5 in a pill covered with a shell, No. 100 pcs. in pack
Povidon	Enterodes, powder for preparation of solution for ingestion, 5 g in a bag

Dioctahedral smectite	Substrate, powder for the preparation of the suspension for ingestion, 3 g in a bag, No. 10 (30) bags in a pack
Enzyme drug from a mixture of dried homogeneous masses of simple glands of the mucous membrane and the covering epithelium of the muscular part of the stomach of birds.	Enterosan 0.3 in capsule, No. 10 (20, 30) capsules in pack

** – the possible number of pills, capsules, bags, grams produced in one pack is given in brackets*

At the first stage of the marketing research we analyzed the assortment of enterosorbent medicinal drugs in their cost availability for end users. It was established that the price range ranged from RUB 2.39 per pack of absorbent carbon 0.25 in pill No. 10 to RUB 478.93 per pack of Enterosgel, paste for ingestion, 22.5 g in pack, No. 10. On this basis, all enterosorbent medicinal drugs were conditionally divided into three price categories at the price of one package: I - up to RUB 50, II - from RUB 51 to 300; III - from RUB 301 to 500.

The first price category (up to RUB 50) included only one medicinal drug under trade name Ugol aktivirovannyi 0.25 in pills presented at the regional pharmaceutical market in 10, 30 and 50 pills in pack. It is the number of pills in a pack that determines the price of this drug from RUB 2.75 to RUB 30.50 per pack.

The second price category (from RUB 51 to 300) includes 8 trade nemes of Enterosorbent medicinal drugs, presented in 18 dosage forms (pills, capsules, powders for ingestion) and various packages: Belyy ugol', Weightsorb, Carbopect, MKC, Polyfepan, Smekta, Filtrum STI, Enterodes.

The third price category of medicinal drugs (from RUB 301 to 500) is represented by 4 trade names: Enterosgel, Lactofiltrum, Polysorb and Enterosan, produced in 10 dosage forms (paste, pills, powders for preparation of suspension and solution) and packs

Further we investigated the sales dynamics of enterosorbent medicinal drugs in the Caucasian Spas region. It was established that in 2019 pharmacies sold more than 218 thousand packs of enterosorbent medicinal drugs used in allergic pathologies. At the same time, gross proceeds from their sales exceeded RUB 9.6 mln. In terms of total sales volume, enterosorbent medicinal drugs are among the leaders, behind the groups of non-steroidal anti-inflammatory, cardiovascular and antimicrobial drugs. Dynamics of monthly sales volumes of enterosorbent medicinal drugs as a percentage of gross proceeds indicates a pronounced seasonality of consumption by this group of medicinal drugs due to natural and climatic peculiarities of the region (Fig. 1).

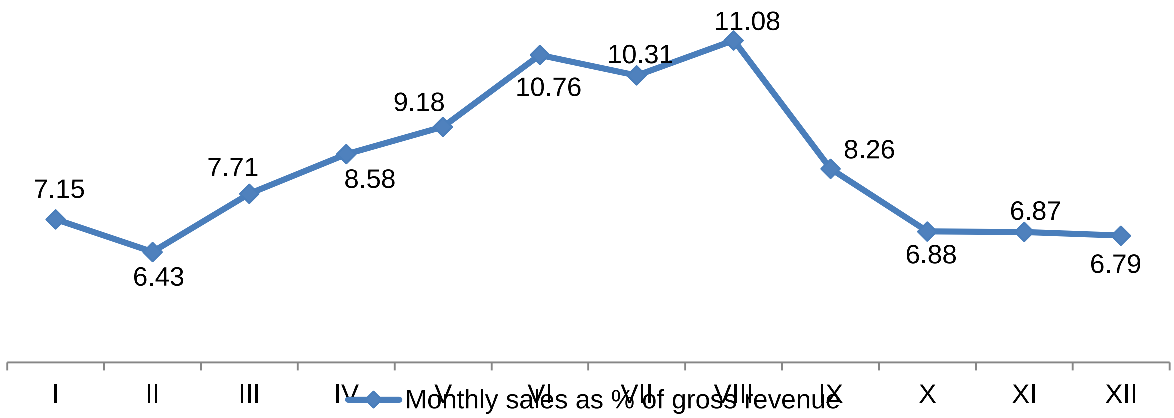

Figure 1. Dynamics of monthly volumes of enterosorbent medicinal drugs sales in 2019

The fundamental task of a pharmacy organization in forming an optimal assortment portfolio is to meet the needs of its target customer audience and to create comfortable conditions for purchasing the necessary medicinal drugs. Marketing research of the product assortment with the help of ABC-/VEN analysis allowed to reveal the rating of goods by sales volumes, to determine the share of the assortment, which is able to provide the largest gross income of the pharmacy organization, as well as to establish the importance of certain assortment positions for the consumers of medicinal drugs. Summary data on the sales volumes of enterosorbent medicinal drugs, including retail prices for 1 pack, the number of sold packs for each month in 2019 and the amount of gross income were used as input materials.

The ABC-analysis of sales conducted showed that the subgroup A included medicinal drugs bringing 80.6% of the gross profit of pharmacies, namely Enterosgel, Smekta, Polysorb, Filtrum STI, Ugol aktivirovannyi, represented in 12 dosage forms. Subgroup B included medicinal drugs, which provide 15.3% of the gross income: Polyfepam, Carbopect and Enterodetic, produced in 9 dosage forms. Subgroup C, the least marginal medicinal drugs that provided 4.1% of gross income to pharmacies, included Lactofiltrum, Whitesorb, Enterosan and Microcrystalline cellulose MKC, represented in 10 dosage forms.

VEN-analysis of the segmentation of "necessity" of enterosorbent medicinal drugs showed that the group of vital V (Vital) medicinal drugs included 5 medicinal drugs in 15 dosage forms: Enterosgel, Smekta, Polyfepam, Lactofiltrum, Belyy ugol'. The group of essential E's (Essential) medicinal drugs consist of 4 medicinal drugs in 8 dosage forms: Ugol aktivirovannyi, Filtrum STI, Carbopect, Whitesorb. The group of non-essential NE (Non-essential) medicinal drugs comprised 4 medicinal

drugs in 8 dosage forms: Polysorb, Enterodes, Microcrystalline cellulose MKC, Enterosan.
By combining the results of ABC-analysis and VEN-analysis (Table 2), we have obtained objective data on the importance and demand for enterosorbent medicinal drugs from the range of products available on the regional pharmaceutical market.

Table 2. Matrix of results of the combined ABC-/VEN-analysis of the enterosorbent medicinal drugs assortment

Groups	V	E	N
A	Enterosgel (2) * Smekta (2)	Ugol aktivirovannyi (3) Filtrum STI (2)	Polysorb (3)
B	Polyphepane (6)	Carbopect (2)	Enterodes (1)
C	Lactrofiltrum (2) Ugol aktivirovannyi (3)	Whitesorb (1)	Microcrystalline cellulose MKC (1) Enterosan (3)

* – *the number of dosage forms is given in brackets.*

From the presented data (Table 2) it follows that the most demanded enterosorbent medicinal drugs for patients and the economically optimal ones for pharmacy organizations are medicines included in cells of AV, AE, BV and BE results matrix.
In order to confirm or disprove the obtained results, an anonymous survey was conducted among 284 visitors of pharmacy organizations in Pyatigorsk, Essentuki, Zheleznovodsk and Kislovodsk who purchased enterosorbent medicinal drugs.
The questionnaire included a number of questions on the study of the socio-demographic portrait of the patient - user of enterosorbent medicinal drugs (gender, age, education), as well as several questions of medical and pharmaceutical nature (presence of allergic rhinitis or other allergic diseases in the patient; use of enterosorbent drugs in the complex treatment; duration of their use in years and the source of the recommendation; specific names of enterosorbent meeicinal drugs used in the complex treatment of allergic rhinitis and other diseases).
Generalization of the obtained opinions made it possible to draw up a socio-demographic portrait of patients who use enterosorbent medicinal drugs in the complex therapy of allergic rhinitis and other allergic diseases. Women predominate among the patients in terms of gender (57.6 per cent), citizens in the 45-50 age group (33.5 per cent) and those with specialized secondary education (40.7 per cent). The medical and pharmaceutical characteristics have revealed that the majority of patients have allergic rhinitis for the period of 15 to 20 years (58.8%), while 43.7% of the respondents use enterosorbents for the management of allergic reactions, along with antihistamine medicinal drugs, which have been used over the last 5 years (35.1%). The source of information for the complex use of enterosorbents in allergic rhinitis and other pathologies were: "Appointment of a doctor" - 41.8% of the total number of respondents' opinions; "Information of a pharmaceutical worker" - 24.5%; "Internet Network" - 17.3%; "Experience of other patients" - 16.4%.
The survey results revealed that the most commonly used enterosorbent medicinal drugs are: Ugol aktivirovannyi - 123 respondents; Polysorb - 104 respondents; Enterosgel and Smecta - 100 respondents each. Periodical demand is the most frequently used: Belyy ugol' - 53 respondents; Polyphepane - 45 respondents; Carbopect - 43 respondents; Lactofiltrum - 42 respondents; Enterodes - 40 respondents; Filtrum STI and Whitesorb - 36 respondents each; Microcrystalline cellulose MKC - 34 respondents, Enterosan - 30 respondents. The results of the survey as a whole correlate with the results of the combined ABC-/VEN-analysis of the enterosorbent medicinal drugs assortment.

Discussion

The results obtained as a result of the experimental part of the study show that the regional pharmaceutical market is represented by a full range of enterosorbent medicinal drugs: 9 international nonproprietary names in 31 dosage forms. The assortment portfolio of all pharmacy organizations on the basis of which the research was conducted included at least 4 international nonproprietary names of enterosorbent medicinal drugs represented by 12-18 dosage forms. It is also important to note the absence of expensive enterosorbent medicinal drugs costing over 500 rubles per package in the pharmacy network. Thus, according to the assortment filling and cost analysis we can substantiate the availability of physical and economic accessibility for enterosorbent medicinal forms patients, which is one of the elements of the safety system of pharmaceutical services provided to the population functioning in the Caucasian Spas region [10]. The data of the analysis of sales volumes testify to the seasonality of consumption associated with the natural and climatic conditions of the region - the period of active flowering of "dusty" plants, fruit ripening, lack of precipitation and other factors contributing to the spread of natural allergens in the environment. Thus, from May to August 2019, the total sales volume amounted to 41.33% of gross proceeds or about 3.97 million rubles. This fact can be used by heads of regional pharmaceutical management bodies and pharmacy organizations to plan the volume of Enterosorbent medicinal products inventory for complete drug supply to the population.
The nomenclature analysis of enterosorbent medicinal drugs assortment performed with the help of combined ABC-/VEN-analysis allowed to identify sales leaders. Sales leaders in the first price category include Ugol aktivirovannyi. In physical terms, the sales volume of this product by Caucasian Spas pharmacies in 2019 amounted to about 128 thousand packs or 58.7% of the total number of sold medicinal drugs. Among drugs of the second price category, the leaders in sales were Smeka, a powder for preparation of a suspension for oral ingestion, 3 g in a pack, No. 10 bags in a pack - 9943 packs and

Filtrum STI 0.4 in a pill, No. 20 psc. in a pack, which sales volume amounted to 1574 packs. The leader of sales in the third price category was Enterosgel in the form of paste for ingestion 225 g in tubes - 6504 packs. This situation demonstrates the willingness of patients to buy more expensive medications for treatment based on trust in their quality and efficiency. The combined ABC-/VEN-analysis revealed 6 trade names in the AV, AE, BV and BE cells of the results matrix: Enterosgel, Smecta, Ugol aktivirovannyi, Filtrum STI, Polyphepane, Carbopect (Table 2). According to the results of the anonymous survey, 4 trade names of enterosorbent medicinal drugs were identified, which patients prefer for the complex treatment of allergic rhinitis: Ugol aktivirovannyi, Polysorb, Enterosgel and Smecta. Comparison of the results shows that consumers' opinions fully coincide with the analytical data, which proves the validity of the study.

Conclusion

The conducted marketing research allowed to determine reliably the sufficient breadth of assortment filling of the regional pharmaceutical market with enterosorbent medicinal drugs used in the complex therapy of allergic rhinitis, which determined their physical availability. The established price characteristics confirmed the economic availability of enterosorbent medicatinal drugs for the population. The data on the dynamics of consumption of this group of medicinal drugs, taking into account seasonal fluctuations in demand, allow for optimal planning of the level of commodity stocks for the period of exacerbation of allergic pathologies in the Caucasian Spas region. The nomenclature analysis has identified the enterosorbent medicinal drugs most in demand by patients with allergic rhinitis, which is important for planning and managing the pharmacy portfolio.

The results of the study were summarized in an information letter for medical workers and implemented in the practical activities of pharmacies and medical organizations [11].

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