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Content Analysis Of Antiallergic Drugs In The Republic Of Uzbekistan

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Abstract

Research objective: to study the general and individual properties of antihistamines and to conduct a content analysis of the AGs nomenclature presented in the pharmaceutical market of the Republic of Uzbekistan.

Materials and methods. The research included antihistamines nomenclature presented in the State Register of Medicinal Remedies of the Republic of Uzbekistan. The analysis involved the data on the registered medicinal remedies based on the materials of the State Register of Medicinal Remedies and Medical Devices for the period of 2018-2019. We also used data from the Vidal Reference "Medicinal remedies in Uzbekistan" and "List of Essential Medicinal Remedies".

Results.The content analysis showed that according to the ratio of positions nomenclature of the 1st generation AGs (sedatives) by countries,both the CIS and domestic manufacturers had equal indicator values(40.5%) of registered and used AGs on the territory of the republic, whereas the foreign manufacturers proportion was about 20%. According to the data for 2019, the proportion of AGs was also equal, although we noted the increasing tendency forintroduction of the 2nd generation AGs with non-sedative effect. If 2018 was characterized by 82 names of medicinal remedies, then in 2019 this number increased to 144. Besides, we noted a total increase and use of AGs compared to 2018 for account of foreign manufacturers, which actively introduced the 2nd generation AGs. The CIS countries and domestic manufacturers lagged significantly behind, accounting for 11.3% and 22%, respectively.

Conclusion. We consider itvery promising to introduce into domestic pharmaceutical practice the 2nd generation AGs in the transdermal and soft form due to the advantages of their application.In addition, at present time, an active work is being carried out to develop and introduce gels and suppositories, combinations ofantiallergic drugs with non-steroidal anti-inflammatory drugs, synthesized by domestic scientists, for the purpose of introducing them into domestic pharmaceutical production and thus reducing the import dependency of drugs in the Republic of Uzbekistan.

Keywords: content analysis,antiallergic drugs, antihistamines, tablets, State Register of Medicines.

INTRODUCTION

In recent years the number of patients suffering from allergic diseases has increased much throughout the world. For this reason, many kinds of drugs have been employed for the treatment of the allergic diseases such as glucocorticoids, antihistamines, ant allergic drugs and bronchodilators.In view of the fact that antihistamines (AGs) occupy an important place in the medical practice, there is a need to

study the pharmaceutical market for assessment and prospects for the creation and introduction of active medicinal remedies (MRs) into domestic pharmacy [1,2,3].

As known, allergic diseasesare third after cardiovascular and oncological diseases (in some ecologically unfavorable regions, allergic diseasesare first). According to the data of the medical statistics department of the Health Board of the Tashkent administration, the incidence of allergic rhinitis, bronchial asthma is constantly increasing, especially among adolescents and children.

Modern pharmacology has a wide range of drugs to control the allergic process. AGs were the first to be proven scientifically and had beenefficiently used for the treatment of various allergic diseases for 70 years.

Despite the variety of antiallergic drugs, including antihistamines, still there is an urgent medical problem in the treatment of allergic diseases. There are many reasons for this. One of them is some lag in medical technologies, as well as the insuficcientawareness of physicians on the modern antiallergic drugs.

However, many physicians and pharmaceutical specialists, according to the established traditions, continue to prescribe the 1stgenerationdrugs or, at least, the 2ndgeneration. Obviously, this is due to the poor awareness of medical workers. In our opinion, the second reason is insufficient use of evidence-based medicinal data when prescribing AGs. The third reason is an irrationalbrand portfolio and information support that does not meet modern requirement[4,5]. In view of the fact that AGsare ofhigh importance in medical practice, there is a necessity to study the pharmaceutical market in order to assess and implement active drugs in domestic pharmacy.

RESEARCH OBJECTIVE

The aim of this research is to study the general and individual properties of antihistamines and to conduct a content analysis of the AGsnomenclaturepresented in the pharmaceutical market of the Republic of Uzbekistan.

MATERIALS AND METHODS

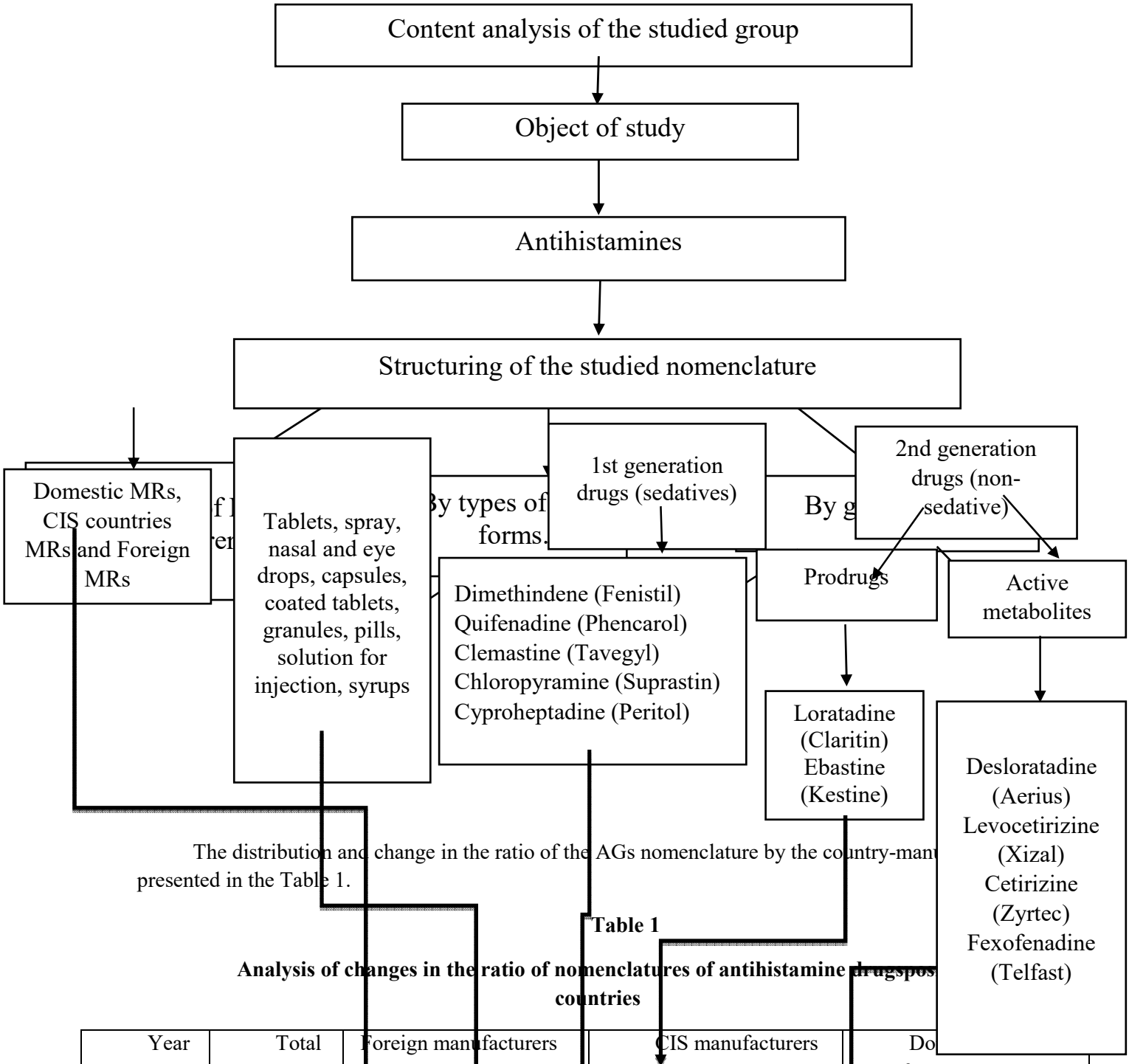
The research included antihistamines nomenclature presented in the State Register of Medicinal Remedies of the Republic of Uzbekistan. The analysisinvolved the data on the registered medicinal remedies based on the materials of the State Register of Medicinal Remedies and Medical Devices for the period of 2018-2019. We also used data from the Vidal Reference “Medicinal remedies in Uzbekistan” and “List of Essential Medicinal Remedies”[1,2,3].

RESULTSAND DISCUSSION

The State Register presents trade namesof AGs, taking into consideration the manufacturers and dosage forms. Without includingdosage form, 112 drugs are registered, constitutinginternational nonproprietary names.Manufacturers from 24 countries are represented. The proportion of domestic AGs-57, trade names 50.89%; import is mainly fromIndia -24, Turkey -22, Hungary-8, Italy -7, Latvia -5, Pakistan – 5.The rest of the countries represent smaller number (Egypt -1, Malaysia -2, Greece -3, Bulgaria -3, China -4, Germany -2, Jordan -2 Slovenia -3, Austria -2, the Czech Republic -3, Belgium -4, Poland -3, Portugal -1, Romania -3, Switzerland -2, Vietnam -1, Macedonia -1, Finland -1). Tableted forms are presented by 58 medicinal remedy names (51.78%), the rest of dosage forms are capsules, syrups, drops, suspensions presented by 54 names (48.21%).

In our research, we developed and used the following content analysis scheme:

General scheme of content analysis



The distribution and change in the ratio of the AGs nomenclature by the country-manu
presented in the Table 1.

Table 1

**Analysis of changes in the ratio of nomenclatures of antihistamine drugspos
countries**

Year	Total	Foreign manufacturers		CIS manufacturers		Do manufacturers	
			%		%	number	%
2018	119	49	41,176%	25	21,0084%	45	37,815%
2019	195	112	57,436%	33	16,92%	50	25,64%

The data presented in the Table 1 shows that 195 medicinal remedy names were registered in digital and percentage proportionfor 2019, and 119 names - for 2018. We noted a significant increase and most of them - 112 names -are provided by the foreign manufacturers, which is n=57(44%), while theshareof the CIS manufacturers is 17.0%, and domestic is 26%. These data are also confirmed in the diagram in Fig. 1.

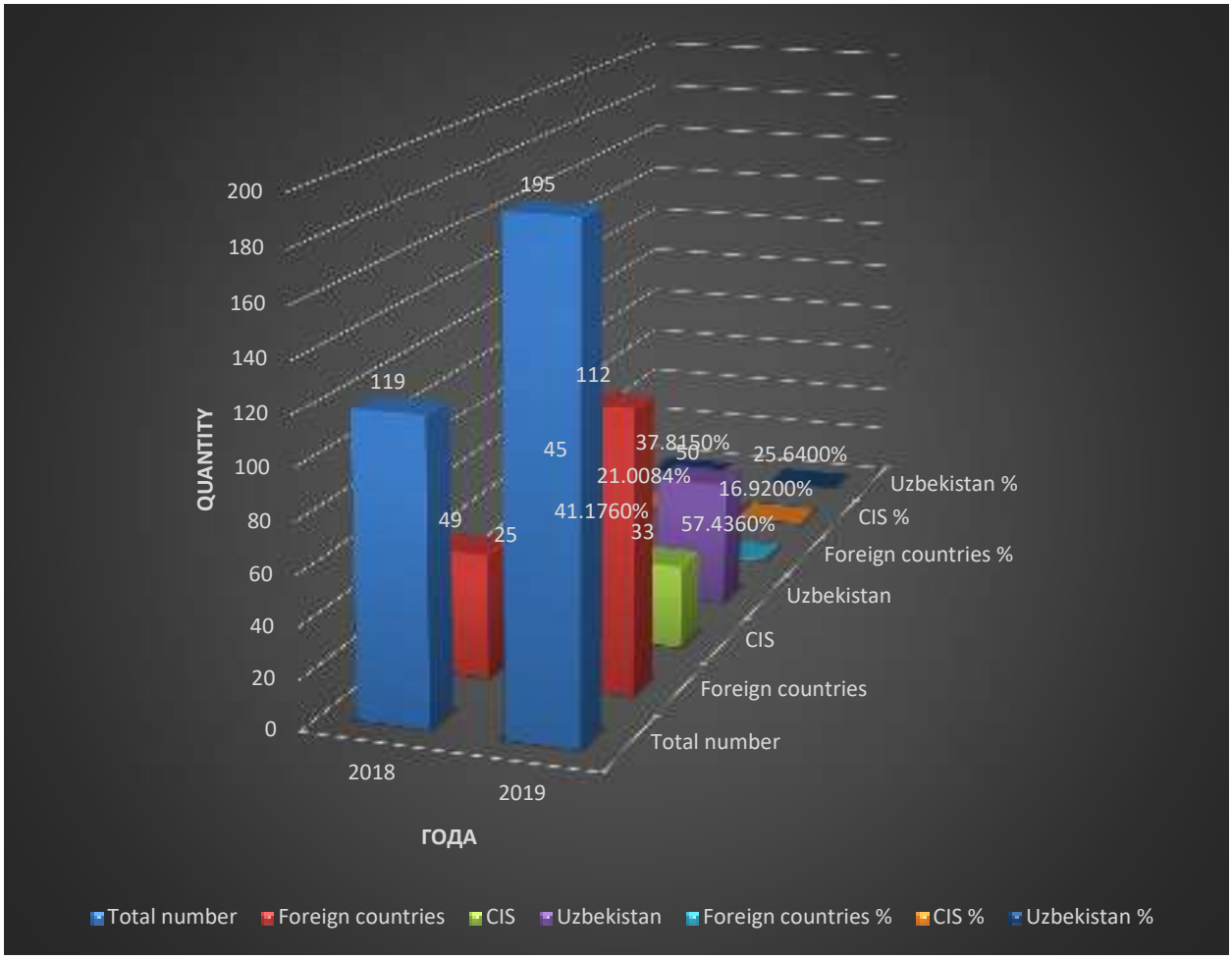


Fig. 1 Analysis of changes in the ratio of antihistaminesnomenclatures by countries

In accordance with the classification, antihistamines are divided into three generations by chemical structure: 1st,2nd,3rd. Analysis of the change in the ratio of the nomenclature of the 1stgeneration AGs positions by countries for the period 2018-2019 is presented in the Table 2.

Table 2

Analysis of changes in the ratio of nomenclatures of 1stgeneration antihistamines by countries

Year	Total	Foreign manufacturers		CIS		Uzbekistan	
		number	%	number	%	number	%
2018	37	7	18,919%	15	40,5405%	15	40,5405%
2019	54	18	33,333%	17	31,4815%	19	35,185%

The analysis of registered 1st generation AGs, without consideringthe dosage forms on a country-by-country basis for 2019, indicated that the largest number of drugs was registered and usedprovided by the foreign countries and domestic manufacturers, which amounted for 33.3% and 35.1% respectively.For the CIS manufacturers this proportionwas 31.4%. The obtained data showed that the 1st generation AGswere evenly distributed in the republic.

Based on the above data, we may conclude that in 2019, the indicator of AGs proportion sold in the Uzbek marketwas distributed evenly,although we noted an increasing tendency for implementation of the 2nd generation AGswith non-sedating effect, which is important for the active and healthy state of the population.

Changes in the ratio of the 1st generation AGs nomenclature by countries are also shown in the Fig. 2a, 2b.

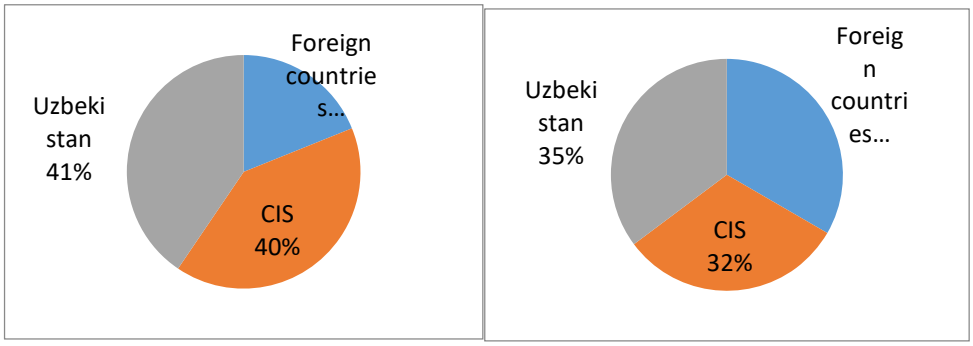


Fig.2a. 1st generation for 2018 Fig.2b. 1st generation for 2019

Analysis of changes in the ratio of nomenclatures without considering trade names and dosage forms of 2nd generation AGs by countries-manufacturers is presented in the diagrams (Fig. 3a, b) and in the Table 3.

Table 3

Analysis of changes in the ratio of 2nd generation antihistamines nomenclature positionsby countries

Year	Total	Foreign manufacturers		CIS		Uzbekistan	
		number	%	number			number
2018	82	42	51,2195%	10	12,195%	30	36,585%
2019	141	94	66,666%	16	11,3475%	31	21,986%

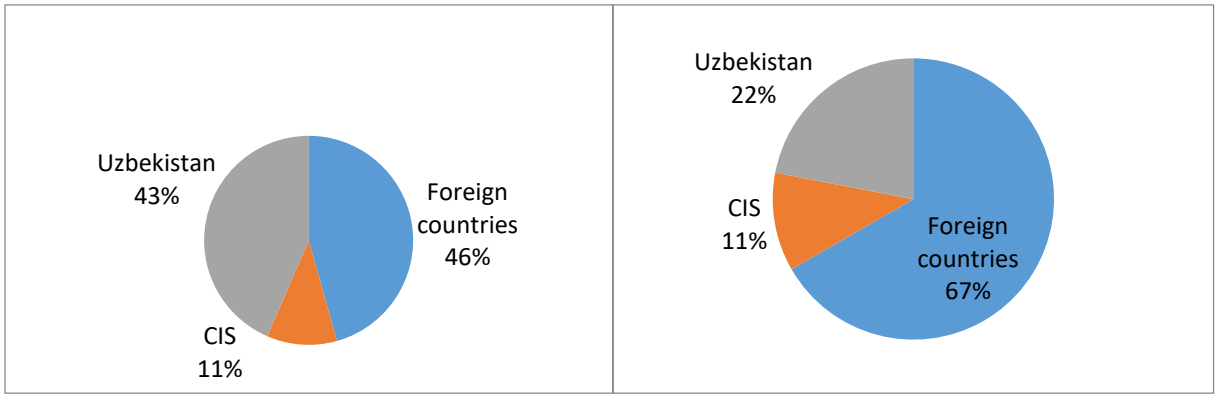


Fig. 3a. 2nd generation for 2018Fig. 3b. 2nd generation for 2019

The presented data of the content analysis on the prevalence of AGs by countries-manufacturersshowed that these drugs outnumbered for 2019 (141 names) than for 2018 (82 names).

The indicators of registered and used AGsproportions on the territory of the republic for 2018 showed almost equal values both from the CIS and domestic manufacturers by 40.5% each, when the same indicator from foreign countries was about 20%. In percentage terms, the proportion of domestic producers was almost equal: domestic 43%, foreign 46%, while the CIS was 11%.

The data in the Table 3 and Figures 3a, b show that the overall increase in the number of AGs used in the republic expandedalmost 2 times compared to 2018 due to the active introducing of 2nd generation AGs by the foreign manufacturers.The CIS and domestic manufacturers significantly lagged behind, accounting for 11.3% and 22%, respectively. On the side of domestic manufacturers, this proportionwas equally presented by tablets and coated tablets,though it was established that the AGs in the form of tablets prevailed in the market of the republic. The use of AGs in the form of combined drugs and gels isconsidered to be more relevant.

As known, the dosage form is of great importance in the manufacturing and application. Besides, therapeutic activity is achieved by choosing a rational light form and drugs combinations, or by combining to obtain synergism of drug effect andto reduce side effects.

The proportion of AGsdosage forms by manufacturers for 2018 is presented in the Figures 4,5,6.

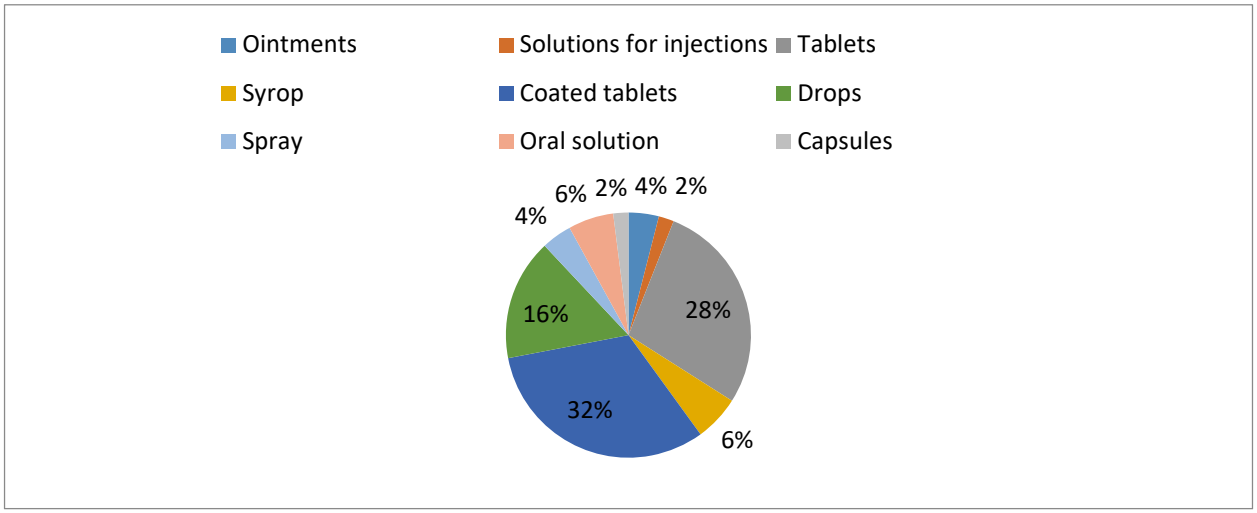


Fig. 4 Foreign manufacturers

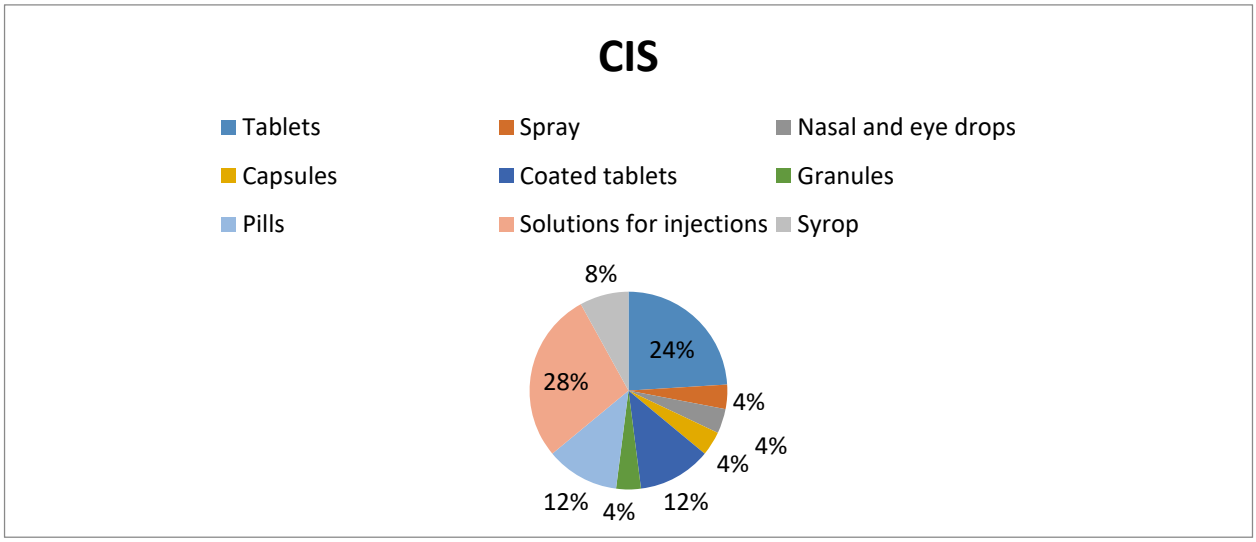


Fig. 5 The proportion of dosage forms of CIS manufacturers for 2018

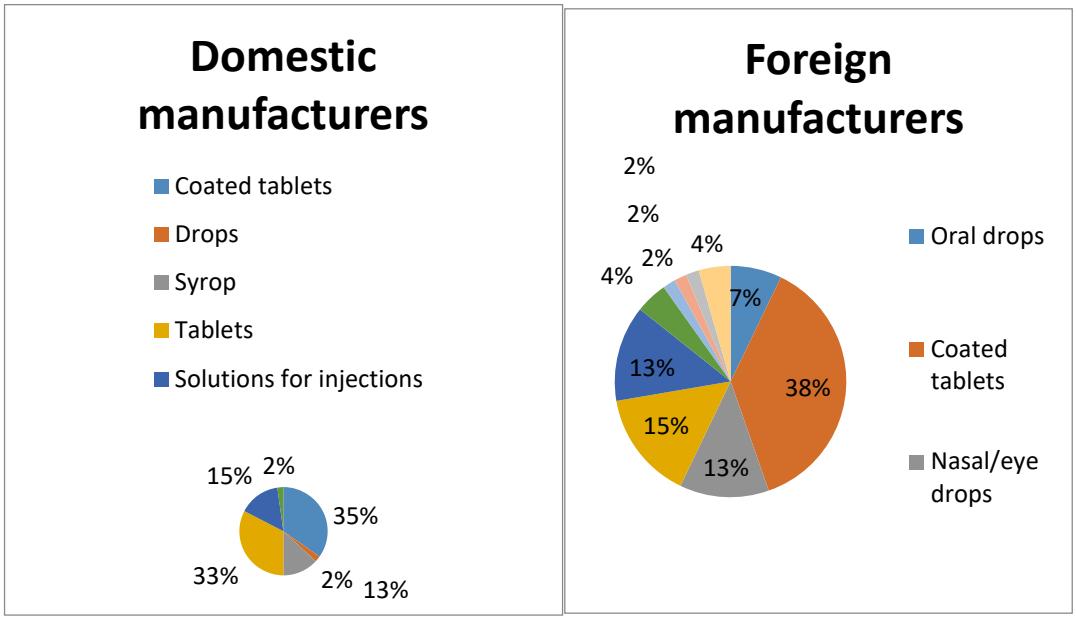


Fig. 6 The proportion of dosage forms of domestic and foreign manufacturers for 2018

The figures show that the indicator of AGs used in 2018 was higher in%, and mainly was presented by the tablets, coated tablets, and solutions for injection. So, the tablets by foreign manufacturers was 32%, coated tablets -28%, and solutions for injection - 16%. According to the data for the CIS manufacturers, injectable solutions (28%)and tablets(26%) prevailed. According to the dataabove, AGs in the soft dosage formsshowedsmall percent, presented by the foreign manufacturers.

Domestic manufacturers showedequal proportion indicators in the form of tablets and coated tablets, proved by the market analysis in the republic. We consider it more relevant and effectiveto use AGs in the form of combined drugs and gels.

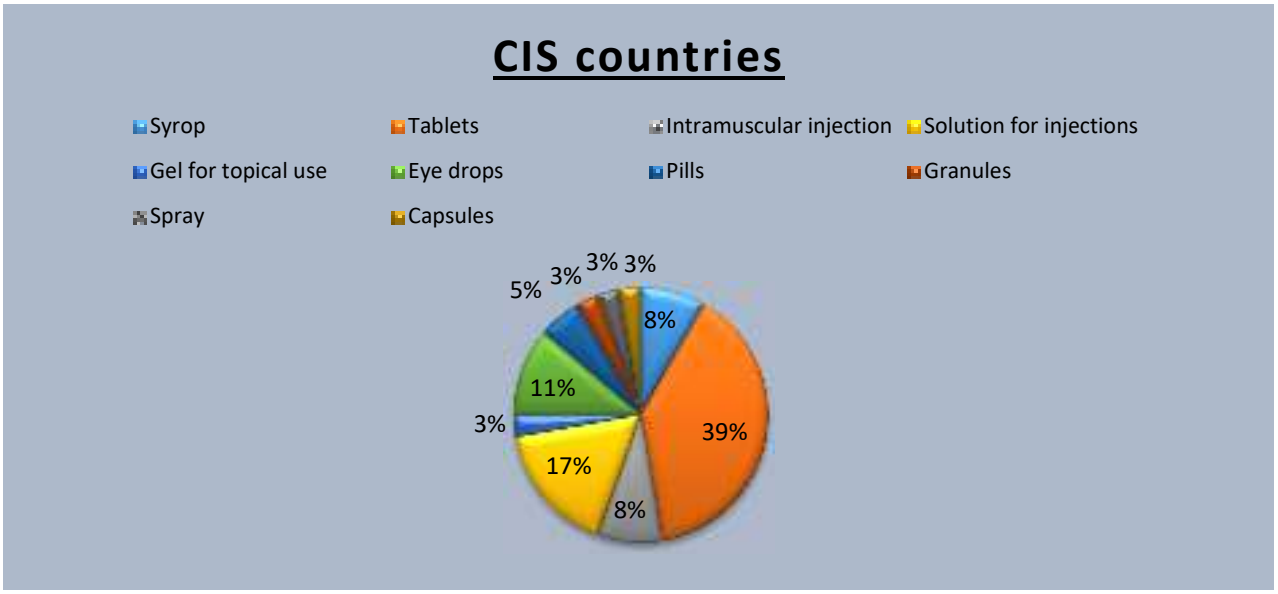


Fig. 7. The proportion of dosage forms of the CIS manufacturers for 2019

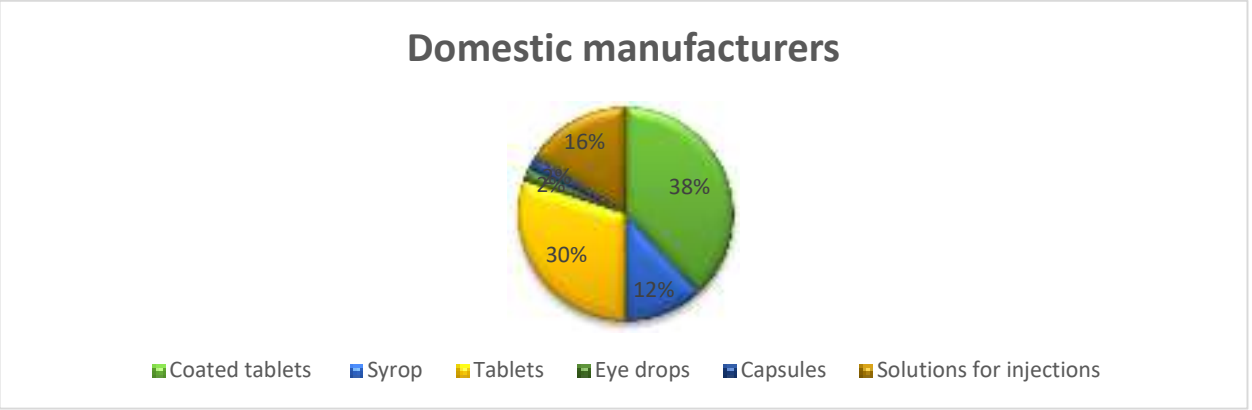


Fig. 8 Proportion of dosage forms by domestic manufacturers for 2019

The analysis of the market and the data presented in the diagrams on the use and registration of AGsby countries for 2019 and by the prevalence of dosage forms, established that generallyforeign manufacturers provided coated tablets (15%), drops(13%) and syrups (15%).

In addition, it was revealedthat the priority was given to tablets, making 39%, whereas the proportion of capsules was 17%, drops- 11%, and theminimum percentagewas given to gels. It should also be noted that domestic manufacturers produced and provided the market with tablets (38%)and capsules (12%).

CONCLUSION

Thus, we managed to conduct a structured content analysis of antiallergic drugs by comparing the quantitative and qualitative characteristics according to the criteria: by type of the drug, by far-abroad, CIS and domestic manufacturers, as well as by classification of their chemical structure (by generations).

The analysis of the change in the ratio of positions nomenclature of the 1st generation AGs (sedatives) by countriesshowed that the indicators of registered and usedAGsproduced by the CIS and domestic manufacturers on the territory of the republic were of equal value, accounting for 40.5%, whereasthe foreign manufacturers proportion was about 20%. According to the data for 2019, it can be concluded that theproportion of AGs was almost equal, although we noted anincreasing tendency for

implementation of the 2nd generation AGswith non-sedative effect. If in 2018 there were 82 names of medicinal remedies, then in 2019 this numberincreased to 144. In percentage terms, the proportion of foreign drugsconcluded46%, domestic - 43%, while the CIS countries - 11%.

The above data revealed the total increase and use of AGs compared to 2018 foraccount of foreign manufacturers, which actively introducedthe 2nd generation AGs. The CIS countries and domestic manufacturers lagged significantly behind, accounting for 11.3% and 22%, respectively.

It should be also noted thatthe introduction into domestic pharmaceutical practice ofthe 2nd generation AGs in transdermal and soft form is ofparticular and promising interest, taking into consideration advantages of their use.

At present time, an active work is being carried outto develop and introduce gels and suppositories, combinations ofantiallergic drugs with non-steroidal anti-inflammatory drugs, synthesized by domestic scientists, or already used for the purpose of introducing into domestic pharmaceutical production and thus reducing the import dependency of drugs in the Republic of Uzbekistan.

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