

**МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
УКРАЇНСЬКА АСОЦІАЦІЯ МАРКЕТИНГУ
НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ**

**КАФЕДРА ФАРМАЦЕВТИЧНОГО МАРКЕТИНГУ
ТА МЕНЕДЖМЕНТУ**



**ЗБІРНИК НАУКОВИХ РОБІТ
IV МІЖНАРОДНОЇ
НАУКОВО-ПРАКТИЧНОЇ
ІНТЕРНЕТ- КОНФЕРЕНЦІЇ**

**МЕНЕДЖМЕНТ ТА МАРКЕТИНГ У СКЛАДІ
СУЧАСНОЇ ЕКОНОМІКИ, НАУКИ, ОСВІТИ, ПРАКТИКИ**

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ПРАКТИКИ**

**MANAGEMENT AND MARKETING IN THE MODERN
ECONOMY, SCIENCE, EDUCATION AND PRACTICE**

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Збірник містить наукові статті IV Міжнародної науково-практичної Internet-конференції науковців та практиків, що здійснюють діяльність в сфері менеджменту й маркетингу та в галузі фармації з різних країн світу.

Розглянуто сучасні досягнення та використання менеджменту й маркетингу у сучасній економіці; форм та методів викладання дисциплін організаційно-економічного й управлінського спрямування на основі теорії менеджменту та маркетингу, практичні аспекти управління виробництвом, контролем якості, реалізацією та споживанням лікарських засобів, підвищення якості фармацевтичної допомоги, управління раціональним використанням лікарських засобів та відповідальним самолікуванням.

Для широкого кола наукових, науково-педагогічних і практичних працівників, що займаються питаннями менеджменту й маркетингу та лікознавством.

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**RETROSPECTIVE ANALYSIS OF THE DOMESTIC
PHARMACEUTICAL MARKET OF DRUGS WITH THE
ANTIDEPRESSANT ACTION**

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The results of marketing analysis of the domestic pharmaceutical market of the drugs with antidepressant action since 2007 till 2015 are presented. The analysis of registration data of antidepressants was done. The structure of the group range was analyzed in accordance with the country of production. It was established that the Ukrainian market is formed mainly by imported drugs. The dynamics of growth of liquidity ratios of antidepressant drugs in the domestic wholesale market was determined.

In recent years, the problem of depression has become one of the most actual not only in psychiatry but also in the global health scale. According to WHO, depressive disorders of different nature affect nearly 5% of the world population, and particularly impressive is the dynamics of this index for the 30 years - since the late 1960s. till the end of the 1990s. This indicator has increased from 0,4% to 5% i.e. more than 12 times, and at least one depressive episode is experiencing 20-25% of women and 7-12% of men. At the same time this figure is significantly higher in the developed countries. For example, about 17% of the population of the U.S. suffers from depression, and in 35-45% of all hospitalized patients of elderly and senile age are observed certain signs of depressive disorders. Thereby, extremely large expenses are connected with the pathology and its treatment, making the depression one of the most cost-effective diseases from the economic standpoint. It is projected that by 2020 depression will be ranked second in the world among causes of disability associated with the disease (after coronary heart disease) [1].

The spread of depressive disorders among the population of all countries of the world, their significant negative effects, substantial costs of providing care to patients, attracted the attention of a wide range of experts to the solution of the problem of effective treatment. Today antidepressants occupy the first place among the newly developed psychopharmacological drugs. Their important characteristic should be the economic availability, the determining factor of which is the price of the drug. In connection with the above mentioned the rational choice of drugs for the treatment of depressive disorders is important.

Till now the detailed study of the current state of the pharmaceutical market of drugs with the antidepressant action and their price characteristics that were represented in the domestic market from 2007 to 2015, has not been conducted in Ukraine yet.

The aim of the study is to assess the pharmaceutical market of antidepressants, the identification of leaders of the countries-manufacturers of the drugs, the ratio of foreign and domestic drug production, as well as the analysis of price characteristics of this group. For the research such methods as comparative, graphical and statistical were used. Data processing was performed using Excel.

The main groups of drugs used today as antidepressants are included tricyclic derivatives (TCAs) and selective serotonin reuptake inhibitors (SSRIs). TCAs (imipramine, amitriptyline) are classical antidepressants that have been used in the whole world for many years. They possess a strong antidepressant activity, however, their application is often accompanied by numerous cases of serious side effects, including life-threatening.

SSRIs (fluoxetine, paroxetine, sertraline, fluvoxamine, escitalopram) are now the most popular and most numerous according to the nomenclature the group of antidepressants. High selectivity of action, fewer side effects, effectively contributed to the increase in the frequency of their use in different clinical forms of depression over the last decades.

According to international anatomical therapeutic chemical classification system ATC, antidepressants belong to the group of drugs that are used for diseases of the central nervous system (N-level classification). While forming the total list of the drugs which were investigated, the provision of medicines unified clinical protocol (MOH Order of Ukraine of 25 December 2014, No. 1003) was considered by us.

Analysis of the data of the State Enterprise "State Expert Center of the Ministry of Health of Ukraine" from 2007 till 2015 allowed to assert that the range of drugs with antidepressant action is constantly updated. Thus, during the analyzed period the number of tricyclic antidepressants has decreased and the number of selective serotonin reuptake inhibitors has increased in the domestic pharmaceutical market.

According to the data given in the Table 1, the largest share in the structure of registered trade names of drugs are medication sertraline and escitalopram, the number of which increased during the study period. Also significantly reduced the number of trade names of drugs amitriptyline. The latter is due to the presence of numerous side effects of tricyclic antidepressants and it corresponds to the general trends in the global pharmaceutical market.

Analysis of the registered trade names of antidepressants with respect to the manufacturers showed that the major part of the range is formed by the products of foreign manufacturers. The number of drugs in accordance with the country-manufacturer possessing antidepressant action which were presented at the domestic pharmaceutical market by March 2015 is shown on Fig. 1.

The ratio of the trade names of antidepressants of foreign and domestic production is 79.4:20.6%. Medicines with antidepressant action of the domestic production were registered by companies: Pharma Start LLS, Zdoroviye PhC LLC, Kiev vitamin factory PJSC, Farmak OJSC, Darnitsa PrJSC, Technologist PrJSC.

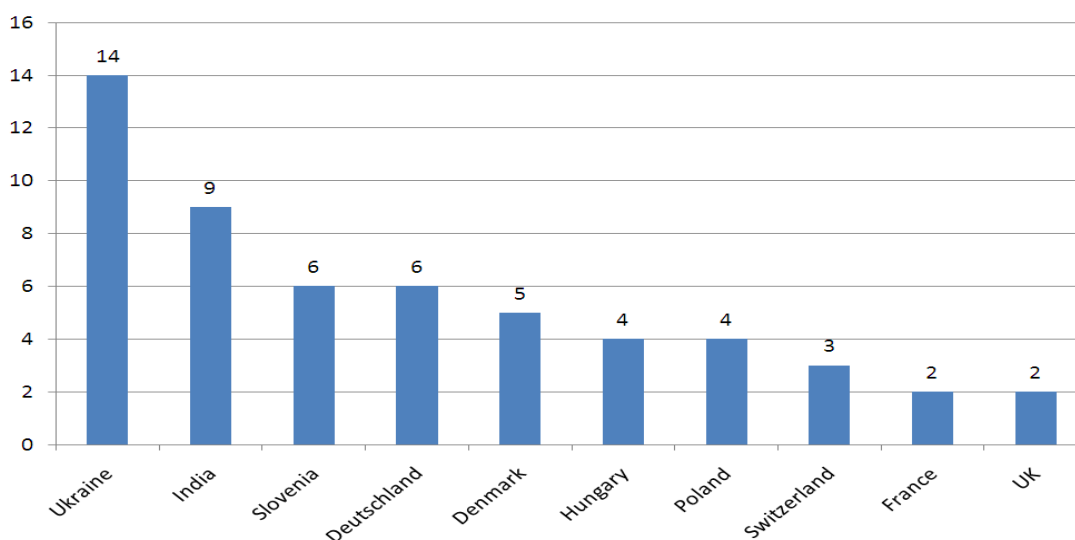


Fig. The number of antidepressants that were registered in Ukraine in March, 2015

It is fair to say that during the study period there was a significant increase in average wholesale prices. According to the price-lists of the wholesale domestic companies was calculated the liquidity ratio of prices for the period from 2007 till 2015.

It is known that the liquidity ratio price (Clig) reflects the level of competition in the investigated segment of the pharmaceutical market, and in a certain way can characterize the availability of drugs [3]. The results of the research presented in Table 2 have proved that number of drugs that had a value more than 0.5 is growing.

According to the results of our calculations, it can be proved that since 2009 till 2015 there prevailed a tendency of increasing the number of drugs, which was characterized by growth of prices. The reasons for changes in prices of the studied medications were the following factors: the introduction of VAT on medicines from 01.04.2014, the devaluation of national currency (inflation), currency exchange rates, changes in pricing policies of drug manufacturers (higher prices or lower cost of raw materials for the manufacture of drugs, the

Table 1

Analysis of the data registration (2007-2015) of antidepressants due INN and trade names

ATC code	INN	2007		2009		2011		2013		2015	
		TN	%	TN	%	TN	%	TN	%	TN	%
N06AA02	Imipramine	1	2.44	1	2.17	1	1.82	1	1.43	1	1.47
N06AA04	Clomipramine	2	4.88	2	4.35	2	3.64	2	2.86	2	2.94
N06AA09	Amitriptyline	9	21.95	8	17.39	6	10.91	3	4.29	5	7.35
N06AA12	Doxepin	-	-	-	-	1	1.82	1	1.43	1	1.47
N06AA21	Maprotyline	1	2.44	1	2.17	1	1.82	-	-	-	-
N06AB03	Fluoxetine	3	7.32	3	6.52	3	5.45	3	4.29	3	4.41
N06AB04	Citalopram	2	4.88	3	6.52	4	7.27	6	8.57	6	8.82
N06AB05	Paroxetine	5	12.2	5	10.87	6	10.91	7	10.0	6	8.82
N06AB06	Sertralin	5	12.2	6	13.04	7	12.73	12	17.14	8	11.76
N06AB08	Fluvoxamine	1	2.44	2	4.35	3	5.45	3	4.29	3	4.41
N06AB10	Escitalopram	1	2.44	1	2.17	2	3.64	6	8.57	14	20.59
N06AX03	Mianserin	1	2.44	2	4.35	2	3.64	4	5.71	3	4.41
N06AX05	Trazodone	-	-	-	-	1	1.82	1	1.43	1	1.47
N06AX11	Mirtazapine	1	2.44	3	6.52	6	10.91	10	14.29	5	7.35
N06AX14	Tianeptine	1	2.44	1	2.17	1	1.82	1	1.43	-	-
N06AX16	Venlafaxine	2	4.88	2	4.35	3	5.45	6	8.57	6	8.82
N06AX17	Milnacipram	1	2.44	1	2.17	-	-	-	-	-	-
N06AX20	Hypericine	4	9.76	4	8.69	5	9.09	3	4.29	2	2.94
N06AX22	Agomelatine	1	2.44	1	2.17	1	1.82	1	1.43	1	1.47
N06AX26	Vortioxetine	-	-	-	-	-	-	-	-	1	1.47
Total		41	100	46	100	55	100	70	100	68	100

Table 2

**Analysis of the coefficients liquidity of antidepressants' prices
for 2007-2015 years**

TN of medicine, form	Manufacturer, country	Clig				
		2007	2009	2011	2013	2015
N06AA09 Amitriptyline						
Amitriptylini hydrochloridum, tabs 25 mg blister №25	Zdoroviye narody LLC (Ukraine)	0.22	0.13	0.49	0.17	0.27
Amitriptylineev 25 mg, tabs coated 25 mg jar, can №25	Pilot plant of State scientific center of medicinal substan LLC (Ukraine)	0.26	0.28	0.49	0.31	0.23
Saroten, tabs coated w/film 25 mg cont. №100	Lundbeck Export (Denmark)	0.10	0.25	0.15	0.43	0.28
N06AB03 Fluoxetine						
Fluoxetine tabs coated 20 mg №10	Pilot plant of State scientific center of medicinal substan LLC (Ukraine)	0.25	0.47	0.35	0.43	0.31
Fluxen, caps. 20 mg №30	Kievmedpreparat OJSC (Ukraine)	0.15	0.17	0.37	0.56	0.43
N06AB04 Citalopram						
Cipamil 20 mg, tabs coated w/film 20 mg №28	Lundbeck Export (Denmark)	0.14	0.14	0.07	0.09	0.32
N06AB05 Paroxetine						
Paroxetine, tabs 20 mg blister №30	Medochemie (Cyprus)	0.11	0.42	0.12	0.18	0.41
Paroxin, tabs coated w/film 20 mg blister №30	Pharma Start LLC (Ukraine, Kiev)	0.06	0.42	0.12	0.17	0.23
N06AB06 Sertralin						
Sertralofit 50, tabs coated 50 mg blister №30	Zdoroviye narody LLC (Ukraine)	0.30	0.16	0.33	0.23	0.19

Stimuloton, tabs coated w/film 100 mg blister №14	Egis (Hungary)	0.20	0.67	0.04	0.27	0.35
Zoloft, tabs coated w/film 50 mg blister №28	Pfizer Inc. (USA)	0.14	0.48	0.91	0.12	0.06
N06AB10 Escitalopram						
Cipralex, tabs coated w/film 10 mg №28	Lundbeck Export (Denmark)	0.14	0.47	0.14	0.51	0.56

changes in the pricing policy of firms-distributors, the growth of foreign use of more cost-effective production technologies, etc.).

Thus, this segment of the pharmaceutical market offers a wide range of medicines with antidepressant action. Recently, due to the unstable economic and financial situation which has developed in Ukraine, there is a significant increase in wholesale prices. This fact has a significant impact on the availability of antidepressants, including the possibility of their use for a long time. In the future results of the analysis can be used in combination studies aimed at developing modern organizational and economic measures to improve the availability and efficiency of pharmaceutical care to patients with depressive disorders. In future, the results of the analysis can be used in complex research aimed at the development of modern organizational and economic measures to increase the availability and efficiency of pharmaceutical care to patients having depressive disorders.

CONCLUSIONS

1. Analysis of the data of the state registration of medicines for 2007-2015 the group of drugs of antidepressant action have shown that during the period studied decreased the number of tricyclic antidepressants and an increased number of selective inhibitors of serotonin reuptake.

2. Among the studied range of drugs, the most important are drugs sertraline and escitalopram.

3. Market analysis showed that among registered in Ukraine antidepressants during the study period marked by the dominance of foreign drugs – 79.4% (in accordance with domestic production – 20.6%).

4. Variation of the calculated liquidity ratios of antidepressant drugs suggests a significant growth rate of prices in recent years due to unstable financial and economic situation in Ukraine.

REFERENCES

1. Бурчинский С. Г. Фитотерапия депрессивных расстройств в общемедицинской практике / С. Г. Бурчинский / Здоров'я України. – 2006. – № 4. – С. 42-43.
2. Кобець Ю. М., Філіпцова О. В., Бабак Т. М. Аналіз асортименту препаратів антидепресантів, представлених на ринку України / Матеріали III науково-практичної конференції «Професійний менеджмент в сучасних умовах розвитку ринку». – Х. 2015. – С. 158-159.
3. Немченко А. С. Ретроспективний аналіз фармацевтичного ринку протівірусних препаратів та імуностимуляторів для лікування грипу / А. С. Немченко, Л. С. Симонян // Вісник фармації. – 2012. – 3 (71). – С. 20-22.
4. Ferrari AJ, Charlson FJ, Norman RE, Patten SB, Freedman G, Murray CJL, et al. Burden of Depressive Disorders by Country, Sex, Age, and Year: Findings from the Global Burden of Disease Study 2010. *PLoS Med*2013;10(11):e1001547.
5. Mathers CD, Loncar D. Projections of global mortality and burden of disease from 2002 to 2030. *PLoS Medicine* 2006;3:e442.
6. Murray CJL, Lopez AD, editors. 1996. The Global Burden of Disease: a comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020. Cambridge (Massachusetts): Harvard School of Public Health on behalf of the World Health Organization & the World Bank.

Наведені результати маркетингового аналізу вітчизняного ринку лікарських засобів антидепресивної дії за 2007-2015 рр. Проведено аналіз даних реєстрації антидепресантів. Проаналізована структура асортименту досліджуваної групи за країнами-виробниками. Встановлено, що український ринок формується в основному за рахунок імпорتنих препаратів. Встановлена динаміка росту коефіцієнтів ліквідності антидепресивних препаратів на вітчизняному оптовому ринку.