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Valentyn Shapovalov
(1) Medical and Pharmaceutical Law, General and Clinical Pharmacy Department, Kharkiv Medical Academy of Postgraduate Education, Kharkiv, Ukraine
(2) Advocates Company Apotheosis, Kharkiv, Ukraine

Andriy Gudzneko
Medical and Pharmaceutical Law, General and Clinical Pharmacy Department, Kharkiv Medical Academy of Postgraduate Education, Kharkiv, Ukraine

Valeriy Shapovalov
(1) Medical and Pharmaceutical Law, General and Clinical Pharmacy Department, Kharkiv Medical Academy of Postgraduate Education, Kharkiv, Ukraine
(2) Healthcare Department, Kharkiv Regional state administration, Kharkiv, Ukraine

Viktoriya Shapovalova
Medical and Pharmaceutical Law, General and Clinical Pharmacy Department, Kharkiv Medical Academy of Postgraduate Education, Kharkiv, Ukraine

Correspondence
Valentyn Shapovalov
(1) Medical and Pharmaceutical Law, General and Clinical Pharmacy Department, Kharkiv Medical Academy of Postgraduate Education, Kharkiv, Ukraine
(2) Advocates Company Apotheosis, Kharkiv, Ukraine

Organizational and legal aspects of the use of Pharmacoeconomic analysis of multivitamin complexes for pharmaceutical provision of military personnel

Valentyn Shapovalov, Andriy Gudzneko, Valeriy Shapovalov and Viktoriya Shapovalova

Abstract
The pharmaceutical market of Ukraine represented by a wide assortment of vitamins, in particular in the form of multivitamin complexes, which sold without a prescription. However, irrational and uncontrolled use of multivitamin complexes with high doses of vitamins can lead to overdose, the development of hypervitaminosis, hypermicroelementosis, imbalance of vitamins and even toxic effects. Pharmacoeconomic study of multivitamin complexes according to the ATC code A11BA for the pharmaceutical provision of military personnel was carried out based on ABC analysis, VEN-analysis and construction of the matrix of the consolidated ABC/VEN-analysis of multivitamin complexes. Established that the producers predominate in the most and the least expensive groups of multivitamin complexes. In addition, processed the share of cost indicators for multivitamin complexes.

Keywords: Pharmaceutical legislation, multivitamin complexes, ABC/VEN-analysis, pharmaceutical provision

Introduction
In the conditions of psycho-traumatic actions of combat stress servicemen experience anxiety (57%), phobias (35%), depression (48%) and social dezaptiation (75%) in the form of conflict, alienation and abuse of psychoactive substances (alcohol, nicotine, etc.), as a way to overcome a stressful situation against a background of various chronic (psycho-) somatic diseases [1, 2]. In the complex treatment of such patients, vitamins prescribed. According to the anatomical-therapeutic and chemical classification system (ATC, WHO, 2016), vitamins belong to the clinical and pharmacological group "A – medications affecting the digestive system and metabolism". Multivitamin complexes of this clinical and pharmacological group widely used in pharmacotherapy of narcological, oncological, endocrine (diabetes) diseases, tuberculosis and other health disorders. A separate section is devoted to vitamins in the State Formular of Medicines of Ukraine, and they are included in the National List of Essential Medicines. The pharmaceutical market of Ukraine represented by a wide assortment of vitamins, in particular in the form of multivitamin complexes, which sold without a prescription (OTC). However, irrational and uncontrolled use of multivitamin complexes with high doses of vitamins can lead to overdosage, hypervitaminosis, hypermicroelementosis, imbalance of vitamins and even toxic effects [3-12].
The purpose of the work was to conduct a pharmacoeconomic analysis of multivitamin complexes according to the ATC code A11BA, which are in circulation on the pharmaceutical market of Ukraine and used for pharmaceutical provision of military personnel in the framework of organizational and legal researches.

Materials and methods of research: Materials of the research were the data of the site of the Ministry of Healthcare of Ukraine, instructions for the medical use of multivitamin complexes according to the ATC code A11BA, current legislative documents, in particular: the Order of the Ministry of Healthcare of Ukraine dated September 21, 2009 No. 681 "On Approval of Clinical Protocols for the Provision of Medical Assistance in the specialty “Narcology”; Order of the Ministry of Healthcare of Ukraine dated September 17, 2007 No. 554 "On approval of medical treatment protocols on the specialty "Oncology"; Order of the Ministry of Healthcare of Ukraine dated May 22, 2009 No. 356 "On Approval of Protocols for Provision of Medical Assistance on the Specialty "Endocrinology"; Order of the Ministry of Healthcare of Ukraine

dated September 04, 2014 No. 620 "Unified clinical protocol of primary, secondary (specialized) and tertiary (highly specialized) medical care to adults. Tuberculosis"; Order of the Ministry of Healthcare of Ukraine dated November 06, 2014 No. 826 "Unified clinical protocol of primary, secondary (specialized) medical aid. Alcoholic Hepatitis" and others [13].
Used documentary, regulatory and pharmacoeconomic methods of analysis. With the help of the pharmacoeconomic method, conducted an ABC/VEN-analysis of multivitamin complexes by the ATC code A11BA used for the pharmaceutical provision of military personnel. The ABC analysis foresees the distribution of multivitamin complexes from the most to the least cost, depending on their specific weight in the general indicator of multivitamin complexes. VEN-analysis of multivitamin complexes was conducted based on the elaboration of the following normative and legal documents: Decree of the Cabinet of Ministers of Ukraine dated March 25, 2009 No. 333 "Concerning some issues of state regulation of prices for medicinal products and medical products"; Order of the Ministry of Healthcare of Ukraine dated April 03, 2017 No. 363 "On approval of the ninth issue of the State Formular of Medicines and ensuring its availability". In the presence of multivitamin complexes in both of the listed documents, the multivitamin complex belonged to group V – vital; in one legal document – to group E – essential; in the absence of multivitamin complex in both regulatory documents, to group N – non-essential, not important [13-16].

Results and discussion: Pharmacoeconomic study of multivitamin complexes by the ATC code A11BA carried out in the following sequence: 1) ABC analysis of multivitamin complexes; 2) VEN-analysis of multivitamin complexes; 3) construction of the matrix of the combined ABC/VEN-analysis of multivitamin complexes.
The results of the ABC analysis of multivitamin complexes by the ATC code A11BA that are in circulation on the pharmaceutical market of Ukraine presented in the table. 1

Table 1: Results of the ABC analysis of multivitamin complexes

No.	VEN group	Trade name	Medical form	Manufacturer, country	Costs, UAH	Share, %	Cumulative share, %	ABC group
1	N	Pikovit	Syrop, bottle. 150 ml, N.1	KRKA, Novo mesto, Slovenia	85,86	19,47	19,47	A
2	N	Pikovit D	Pills covered, N.30	KRKA, Novo mesto, Slovenia	78,00	17,69	37,17	A
3	N	Pikovit forte	Pills covered, blister, N.30	KRKA, Novo mesto, Slovenia	77,93	17,68	54,84	A
4	N	Pikovit	Pills covered, N.30	KRKA, Novo mesto, Slovenia	76,38	17,32	72,17	A
5	N	Decamevit	Pills covered, blister, N.20	PJSC "Kyiv Vitamin Plant", Ukraine	28,01	6,35	78,52	A
Group A total:					*346,18*	*78,52*	-	*5*
6	N	Complevit	Capsules, blister, N.20	PJSC "Kyiv Vitamin Plant", Ukraine	26,43	5,99	84,52	B
7	N	Undevit	Dragee, container, N.50	PJSC "Kyiv Vitamin Plant", Ukraine	10,06	2,28	86,80	B
8	N	Undevit	Dragee, container, N.50	PJSC "Technolog", Ukraine	10,04	2,28	89,07	B
9	N	Undevit	Dragee, container, N.50	PJSC "Vitamins", Ukraine	9,81	2,23	91,30	B
10	N	Revit	Dragee, container, N.80	PJSC "Kyiv Vitamin Plant", Ukraine	8,21	1,86	93,16	B
11	N	Hexavit	Dragee, container, N.50	PJSC "Vitamins", Ukraine	7,91	1,79	94,96	B
Group B total:					*72,46*	*16,44*	-	*6*
12	N	Revit	Dragee, container, N.100	PJSC "Technolog", Ukraine	7,82	1,77	96,73	C
13	N	Revit	Dragee, container, N.100	PJSC "Vitamins", Ukraine	7,42	1,68	98,41	C
14	N	Hexavit	Dragee, container, N.50	PJSC "Vitamins", Ukraine	7,00	1,59	100,00	C
Group C total:					22,24	5,04	-	*3*
ABC groups total:					440,88	100	-	14

As shown by the results of the ABC analysis (Table 1), the group A included multivitamin complexes, the use of which amounted to 80.0% of the total; to group B – 15.0%, and to group C – 5.0%.
Group A united five multivitamin complexes (346.18 UAH), which amounted to 78.52% of expenses; to group B included six multivitamin complexes (72.46 UAH) – it is 16.44% of expenses; group C represents three multivitamin complexes (22.24 UAH) – 5.04% of total expenses.
To evaluate the effectiveness of the use of multivitamin complexes VEN analysis was carried out. The results of the VEN analysis (Figure 1) showed that all of multivitamin complexes (100%) were included to the group N – non-essential, not important. Therefore, there are no vital (V) and essential (E) medicines among the studied multivitamin complexes.

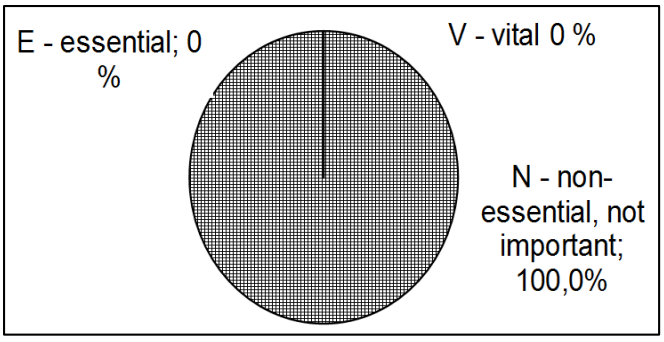

Fig 1: Distribution of multivitamin complexes by VEN-analysis groups

Based on the obtained data, constructed the matrixes of the consolidated ABC/VEN-analysis according to the quantitative indicator (Table 2) and the trade names of multivitamin complexes (Table 3).

Table 2: The matrix of consolidated ABC/VEN analysis by quantitative indicator of multivitamin complexes

Group of multivitamin complex	V			E			N		
	Quantity of multivitamin complexes	Costs		Quantity of multivitamin complexes	Costs		Quantity of multivitamin complexes	Costs	
		UAH	%		UAH	%		UAH	%
A	-	-	-	-	-	-	5	346,18	78,52
B	-	-	-	-	-	-	6	72,46	16,44
C	-	-	-	-	-	-	3	22,24	5,04
Total:	-	-	-	-	-	-	14	440,88	100

From Table 2 it is evident that the largest share of the total index of expenditures on multivitamin complexes falls on the group N/A – 78.52%, and the smallest – in the group N/C – 5.04%. For multivitamin complexes of V/A, V/B, V/C and E/A, E/B, E/C groups accounted for 0% of all costs associated with the pharmaceutical provision with multivitamin complexes for patients.

Table 3: The matrix of consolidated ABC/VEN analysis by trade names of multivitamin complexes

	Group A	Group B	Group C
V (vital)	–	–	–
E (essential)	–	–	–
N (non-essential)	*Decamevit* (PJSC "Kyiv Vitamin Plant", Ukraine); *Pikovit, Pikovit D, Pikovit forte, Pikovit* (KRKA, Novo mesto, Slovenia)	*Hexavit* (PJSC "Vitamins", Ukraine); *Complevit;* *Revit* (PJSC "Kyiv Vitamin Plant", Ukraine); *Undevit* (PJSC "Kyiv Vitamin Plant", Ukraine, PJSC "Technolog", Ukraine, PJSC "Vitamins", Ukraine)	*Hexavit* (PJSC "Technolog", Ukraine); *Revit* (PJSC "Technolog", Ukraine, PJSC "Vitamins", Ukraine)

So, according to the Table 3 in the most expensive group N/A (78.52%) predominant multivitamin complexes of foreign production, in particular Pikovit (syrup and pills), Pikovit D, Pikovit forte (Slovenia). However, the lowest costs groups N/B (16.44%) and N/C (5.04%) fill with multivitamin complexes of domestic production, in particular Hexavit, Complevit, Revit, Undevit.

Thus, with the help of a pharmacoeconomic analysis, a matrix of ABC/VEN analysis of multivitamin complexes used for pharmaceutical provision of military personnel was constructed.

Conclusions. Based on study of the organizational and legal aspects of the current legislation, a pharmacoeconomic analysis of multivitamin complexes by the ATC code A11BA in circulation on the pharmaceutical market of Ukraine for the pharmaceutical provision of military personnel was conducted. Revealed that the largest share (78.52%) of the total expense attributed to the groups N/A NEC: Decamevit (PJSC "Kyiv Vitamin Plant", Ukraine); Pikovit, Pikovit D, Pikovit forte, Pikovit (KRKA, Novo Mesto, Slovenia), and the smallest (5.04%) – on the multivitamin complexes of the N/C group: Hexavit (PJSC "Technolog", Ukraine), Revit (PJSC "Technologist", PJSC "Vitamins", Ukraine).

References

1. Shapovalov V. (Jr.), Zbrozhek S, Gudzenko A, Shapovalova V, Shapovalov V. Organizational and legal analysis of the pharmaceutical provision for the most common diseases of society. International Journal of Pharmaceutical Sciences Review and Research. 2018; 51(1):118-124.
2. Evaluation of stress intensity and anxiety level in preoperative period of cardiac patients [Weblink: http://dx.doi.org/10.1155/2016/1248396]. [Visited on 15 June, 2018].
3. ATC-classification. Compendium online. [Weblink: http://compendium.com.ua/atc]. [Visited on 20 February, 2018].
4. Peresypkin AV. Forensic and pharmaceutical justification of the circulation of the medicines with psychoactive properties of different nomenclature and legal groups. PhD dissertation. National Pharmaceutical University of the Ministry of Healthcare of Ukraine, Kharkiv, 2013, 54-79.
5. Shapovalov V (Jr.), Gudzenko A, Shapovalova V, Osyntseva A, Shapovalov V. Forensic and pharmaceutical study of the presence of a causal link between the degree of alcohol abuse and qualification level of the respondents. Pharmacia. 2017, 64 (3):31-39.
6. Shapovalov V (Jr.), Gudzenko A, Komar L, Butko A, Shapovalova V, Shapovalov V. Concerning the importance of forensic and pharmaceutical researches to improve patients' accessibility to medicines. Pharmacia 2017; 65(2):23-29.
7. Shapovalova VA, Shapovalov VV (Jr.), Shapovalov VV, Vasina Ju V, Koneva V Yu. Legislation in pharmacy, forensic pharmacy and evidence-based pharmacy: study book (3rd ed.), Kharkiv, 2011, 12-45.
8. Shapovalov VV, Shapovalov VV (Jr.), VO Shapovalova, Yu Vasina V. *Slobozhansky chytannya.* Medical and pharmaceutical law of Ukraine: materials of the XI Scientific and practical conference with international specialists' participation, Kharkiv. 2014, 65-120.
9. Shapovalova VO, Shapovalov VV, Shapovalov (Jr.) VV, Osyntseva AO. *Slobozhansky chytannya.* Medical and pharmaceutical law of Ukraine: materials of the XIII International scientific and practical conference, Kharkiv,

2016, 27-76.
10. Shapovalov VV (Jr.), Shapovalova VO, Shapovalov VV, Osyntseva AO. *Slobozhansky chytannya.* Medical and pharmaceutical law of Ukraine: materials of the XIV Scientific and practical conference with international specialists' participation, Kharkiv, 2017, 43-104.
11. Vasina Yu V. Organizational researches of forensic pharmacy concerning prevention of young people's drug addiction by psychoactive substances. PhD dissertation. National Pharmaceutical University, Kharkiv, 2009, 39-123.
12. Organizational and legal research of indicators of incidence and prevalence of diabetes mellitus in countryside areas [Weblink: http://www.imiamn.org.ua/journal/1_2017/zmist1_2017.html]. [Visited on 19 May, 2018].
13. Ministry of healthcare of Ukraine official site [Weblink: http://moz.gov.ua/]. [Visited on May 7, 2018].
14. ABC, VED analysis in medical stores inventory control [Weblink: http://www.mjafi.net/article/S0377-1237(07)80006-2/abstract]. [Visited on 24 June, 2018].
15. Shunkina S, Hromovyk B. Methadone as an alternative analgesic for palliative patients. Pharmacia. 2016; 63(4):21-28.
16. Radionova VO. Pharmacoeconomic analysis of medicinal products that are used for treatment regimensof nicotine addiction in women. Ukrains'kyi visnyk psykhonevrolohii 2014, 22(2):244-252.