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Рекомендована д. фармац. наук, проф. В. В. Трохимчуком  
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 DOI

**MARKETING ANALYSIS AND MONITORING OF PRICES FOR MEDICATIONS WITH CORTICOSTEROIDS OF SOFT DOSAGE FORM USED IN DERMATOLOGY**

© B. V. Vons, M. B. Chubka, T. A. Hroshovi

*Ternopil State Medical University by I. Ya. Horbachevsky*

**Summary:** It was studied the assortment of soft medications with corticosteroids used in dermatology. It was found the correlation of domestic and foreign medications within each pharmacotherapeutic subgroup of medications. The price range was analyzed and the liquidity ratio for medications in this category was calculated too.

**Key words:** corticosteroids, soft dosage forms, price monitoring, market research.

**Introduction.** Every year the level of skin disease is growing rapidly. Today soft medications (SM) take the first place for the local treatment of dermatological diseases [1, 2]. SM with corticosteroids (CS) are the most commonly used medications in dermatology. This group of medications (M) for over 50 years is used for treatment of dermatitis, eczema, erythema, psoriasis, for relieving symptoms of inflammation and itching of the skin [3]. The therapeutic effect of these medications is due to their anti-inflammatory, antihistamine and vasoconstrictor action.

However, the price is one of the constituent elements of pharmaceutical marketing and one of the most important factors determining the choice of buyers and demand for goods [4]. Taking into consideration, that CS belong to high-cost medications, the analysis of registered medications at the pharmaceutical market of Ukraine and price monitoring are actual issues.

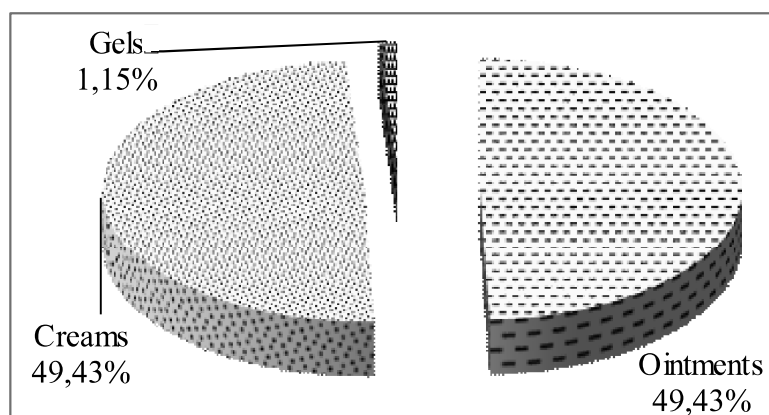
The aim of research was to study the index of medication assortment with corticosteroids, summarize the results of price analysis, namely: the calculation of average retail prices of medications, liquidity ratios of prices,

which were analyzed with the following justification of general trends.

**Research methods.** The object of the study was the information posted on the website «Regulatory and legislative documents of the Ministry of Health of Ukraine» [5] about registered SM in Ukraine and the method of analysis of used secondary marketing information. The electronic on-line directory «Compendium» [6] was used as an information source. The system-viewing method, graphic, documentary and marketing methods were used for the research.

**Results and discussion.** There has been 492 names registered, of which 226 medications are used in dermatology according to preliminary studies, for the date of January 1, 2015.

The largest number of registered medicines belongs to the group of medications with corticosteroids (D 07), 80 medications are used in dermatology. According to the order No. 235 «classifier dosage forms» [7] of MPH of Ukraine, all registered medications with CS were divided due to their dosage form into creams, ointments, gels, pastes, liniments (Fig. 1).



**Fig. 1.** The assortment of SM with corticosteroids considering the type of dosage form

Thus, in the ratio ointments and creams have 49.43 % of the assortment, gels only 1.15 % and corticosteroid medications such as liniments and pastes are not represented on the pharmaceutical market of Ukraine.

The domestic market of SM with CS depends on import because soft dosage forms (SDF) of foreign manufacturing take 73.56 % of assortment, while soft dosage forms (SDF) of domestic production have 26.44 % of the market.

SM with CS are represented by 12 countries of the world at Ukrainian market, the leaders are: Poland – 21.87 %, India – 14.06 %, Italy – 12.5 %, Germany – 10.93 %, Belgium and Croatia – 9.37 % each. Other countries, import of which is not higher than 5 medications, occupy 21.90 % of the Ukrainian market of SDF.

In Ukraine, SM with corticosteroids are produced by 8 pharmaceutical enterprises of different ownership. Leading manufacturing positions are occupied by Pharmaceutical Company Zdoroviya, LLC – 26.08 %, Farmak, PJSC, Pharmaceutical company Darnytsiya, PJSC and Kievmedpreparat, PJSC have 17.39 % each of pharmaceutical market. Other pharmaceutical companies that have production of soft dosage forms with CS no more than 3 medications occupy 21.75 % of the market.

Price is one of the most important elements of the marketing complex because it determines the monetary price paid for a particular product [8].

Price features of SDF with CS presented at the domestic wholesale market from January 2015 to May 2015 were investigated during the research. In particular, dynamics of changes, average weighted wholesale price and liquidity ratios were studied. Wholesale prices presented on an electronic resource «Ezhenedelnyk apteky» [9] were used for the analysis.

We analyzed the pricing environment of SDF with CS and defined liquidity ratio, which has showed the balance between the maximum and minimum price of a particular medication at a current period at the appropriate market [4] for this category of medications of soft dosage form during January – May 2015 (Fig. 2).

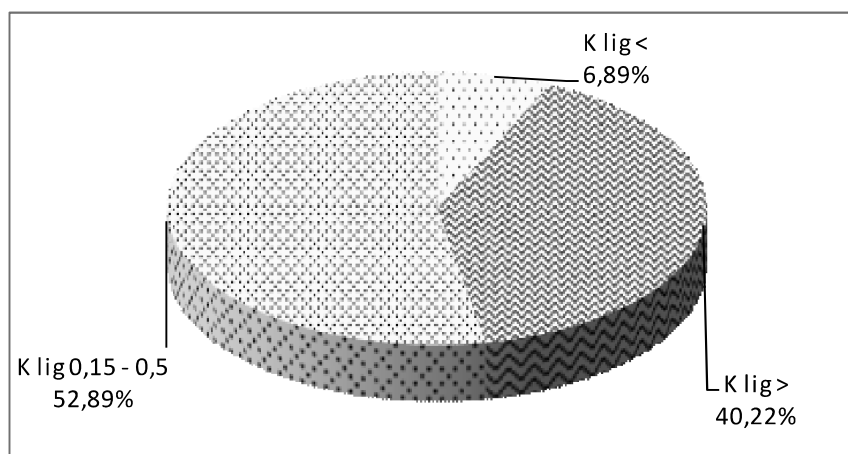
6.89 % of medications of soft dosage forms with CS have liquidity ratio less than 0,15, it may indicate that these medications are not demanded at the market, or a manufacturer specifically limits the number of mediators in a specific geographic region using the selective distribution and giving the exclusive right to sell its goods.

At 52.89 % of medications liquidity ratio range between 0,15-0,5 is permitted for standards and typical for sales of domestic medications, which is mainly performed as single, two, or zero level of marketing channel.

40.22 % of medications of soft dosage form with CS have liquidity ratio higher than 0,5, it means that the price volatility is 50 % and higher. When this ratio is higher than 1,0, it means that the range of prices of this medication is currently characterized by more than one hundred percent difference.

Also it was found the average arithmetic wholesale prices for this group of medications during the studied period. All SM with corticosteroids (group D 07 according to ATC classification) were analyzed due to the international non-patented name and divided into domestic and imported medications (Table 1)

Average price for 1 pack of medication of MDF with corticosteroids had a significant tendency to change a price during the period of study. The wholesale price of the medication with CS of domestic manufacturer varies from UAH 14.02 per pack to 67.43 UAH, while the price of imported medication is from 19.89 UAH to 267.35 UAH per one pack. It should be noted that the price of imported medications is higher in three times than the price of domestic counterparts. For example, we compared German medication Soderm and medications of domestic manufacturers such as Betazon (Zdoroviya, LLC) and Mezoderm (Borshchagivskyy CPF, CJSC). They belong to the same group of ATC classification (D07AC01) and are produced as cream and contain the same amount of active pharmaceutical ingredient – betamethasone and relatively similar excipients composition, but prices differ



**Fig. 2.** The data value of liquidity ratios of SM with corticosteroids

**Table 1.** The assortment and pricing policy of corticosteroids for using in dermatology D07 group

ATC-code	International non-patented name (NN)	Number of names of domestic medications	Average wholesale price, UAH per one pack	Number of names of imported medications	Average wholesale price, UAH per one pack
D07AA02	Hydrocortisone	-	-	1	25,12
D07AA03	Prednisolone	1	18,04	1	19,89
D07AB02	Hydrocortisone butyrate	-	-	5	109,03
D07AB09	Triamcinolone	1	20,45	1	84,02
D07AB10	Alklometazon	-	-	2	81,30
D07AC01	Betamethasone	3	37,52	3	82,61
D07AC04	Fluocinolone Acetonide	2	14,02	3	48,66
D07AC13	Mometasone	2	53,80	7	164,53
D07AC14	Methylprednisolone aceponate	2	54,23	2	131,19
D07AC17	Fluticasone	-	-	2	84,21
D07AC18	Prednicarbate	-	-	2	87,25
D07AD01	Clobetasol	1	37,72	8	71,77
D07BB01	Flumethasone and Antiseptics	-	-	1	71,85
D07BB03	Triamcinolone and Antiseptics	1	41,70	-	-
D07BC01	Betamethasone and Antiseptics	-	-	1	267,35
D07CA01	Hydrocortisone and Antibiotics	-	-	5	83,17
D07CC01	Betamethasone and Antibiotics	3	67,43	10	134,40
D07CC04	Beclometasone and Antibiotics	-	-	1	127,60
D07CC05	Flumethasone and Antibiotics	1	38,03	-	-
D07XA02	Prednisolone	1	23,86	1	171,86
D07XC01	Betamethasone	2	49,92	2	116,32
D07CC03	Mometasone	1	56,98	1	210,75

significantly. So, during the analyzed period the average wholesale price of medication Soderm is 104.42 UAH, Mezoderm – 40.97 UAH, Betazon – UAH 38.75 respectively.

Among the companies which offer at Ukrainian pharmaceutical market corticosteroids medications (D 07A), during the studied period the highest average prices are for certain medications of the subgroup D07AA – corticosteroids with low activity (group I) and D07AB – moderately active corticosteroids (group II), in particular: Lokoyid cream and Lokoyid Lipokrem ointment (manufactured in Italy) (Fig. 3).

During the researched period, for subgroup of corticosteroids D07AC – active corticosteroids (group III) and D 07AD – highly active corticosteroids (group IV) the highest average price are for the following medication: cream Tselestoderm –B of Belgian company Schering-Plough Labo N.B. and Momat cream of Indian company HlenmarkPharmaceuticals LTD . These medications belong to the category of high-costed medication (Fig. 4).

The maximum price for the medication Momat cream was observed in February 2015 and Tselestoderm-B had high price in the period of January-March.

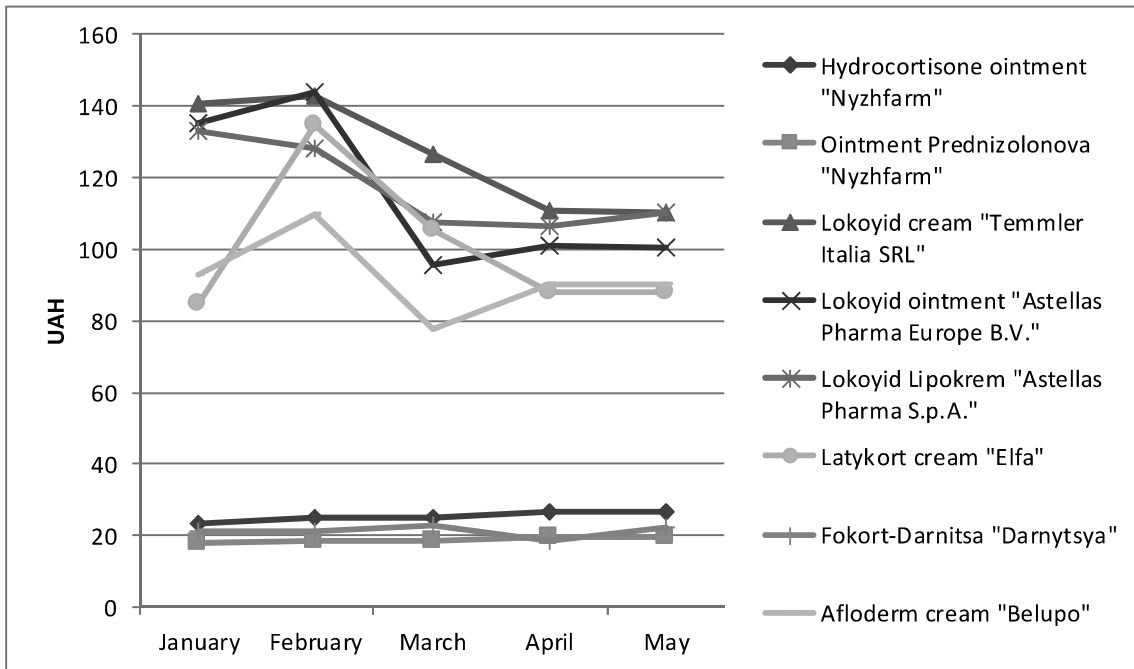


Fig. 3. Dynamics of change of average wholesale prices of medication for subgroup D07AA – corticosteroids with low activity (group I) and D07AB – moderately active corticosteroids (group II).

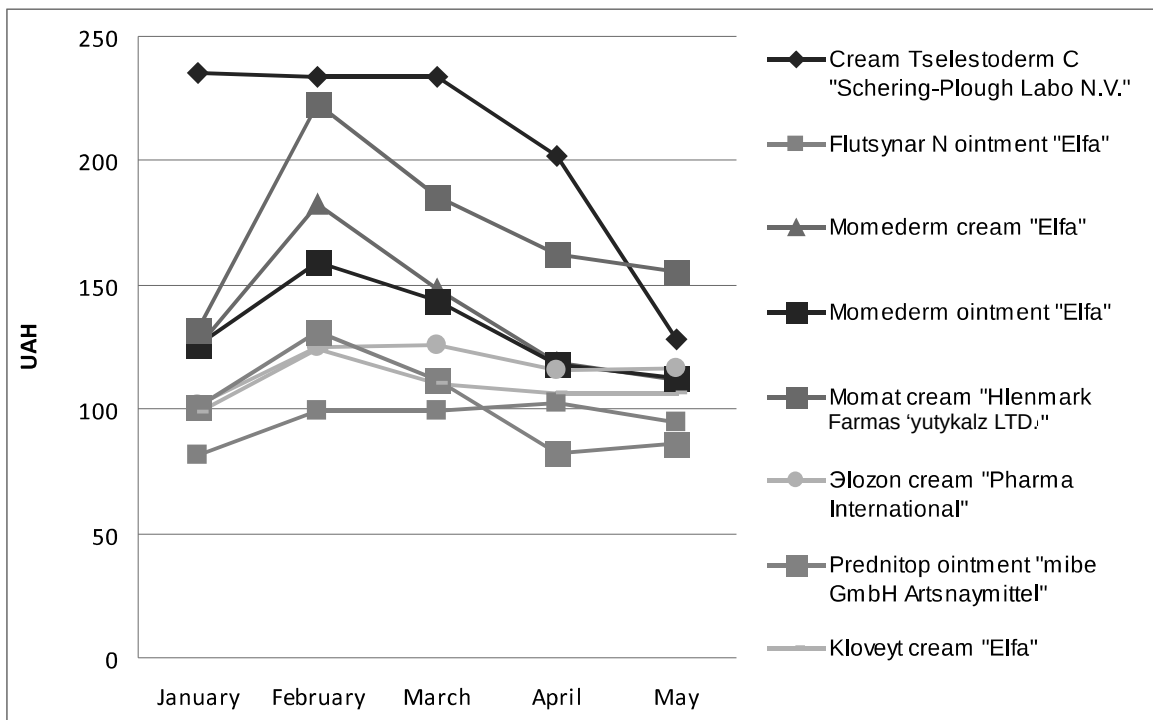


Fig. 4. Dynamics of change of average wholesale prices of medication for subgroup D07AC – active corticosteroids (group III) and also subgroup D07AD – highly active corticosteroids (group IV).

**Conclusions**

1. The domestic market of SM used in dermatology has been analyzed and it was found that for the date of January 1, 2015, 226 medications were registered in

Ukraine, of which 80 SM with corticosteroids are produced in the form of ointments and creams.

2. It was determined that 73.56 % of all SM with corticosteroids are of foreign manufacturers, the main importing

countries are Poland – 21.87 %, India – 14.06 %, Italy – 12.5 %, Germany – 10.93 % Belgium and Croatia 9.37 % each. The leading domestic manufacturers of SM with corticosteroids are Pharmaceutical Company Zdorovya, LLC; Farmak, JSC, Pharmaceutical company Darniysa, PJSC; and Kyivmedpreparat, JSC of Arterium Corporation.

3. The market pricing environment of SM for dermatological disease treatment was investigated at the pe-

riod of January-May 2015. It was found that the average price per 1 pack of medication had a significant tendency to change over the researched period. SM with corticosteroids of import manufacture are more expensive than domestic counterparts.

4. Indicators of price liquidity for 62.89 % of the studied medications are not higher than 0.5, which is acceptable to consumers.

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### **АНАЛІЗ РИНКУ ТА МОНІТОРИНГ ЦІН НА ЛІКАРСЬКІ ЗАСОБИ З КОРТИКОСТЕРОЇДАМИ М'ЯКОЇ ФОРМИ ВИПУСКУ, ЩО ВИКОРИСТОВУЮТЬСЯ В ДЕРМАТОЛОГІЇ**

**Б. В. Вонс, М. Б. Чубка, Т. А. Грошовий**

*Тернопільський державний медичний університет імені І. Я. Горбачевського*

**Резюме:** досліджено асортимент м'яких лікарських засобів з кортикостероїдами, які використовують у дерматології. Визначено співвідношення лікарських засобів вітчизняного та іноземного виробництва в межах кожної фармакотерапевтичної підгрупи лікарських препаратів. Проаналізовано ціновий діапазон, розраховано коефіцієнт ліквідності для препаратів даної категорії.

**Ключові слова:** кортикостероїди, м'які лікарські форми, моніторинг цін, маркетингові дослідження.

### **АНАЛИЗ РЫНКА И МОНИТОРИНГ ЦЕН НА ЛЕКАРСТВЕННЫЕ СРЕДСТВА С КОРТИКОСТЕРОИДАМИ МЯГКОЙ ФОРМЫ ВЫПУСКА, ПРИМЕНЯЕМЫЕ В ДЕРМАТОЛОГИИ**

**Б. В. Вонс, М. Б. Чубка, Т. А. Грошовий**

*Тернопольский государственный медицинский университет имени И. Я. Горбачевского*

**Резюме:** исследовано асортимент мягких лекарственных средств с кортикостероидами, которые используют в дерматологии. Определено соотношение лекарственных средств отечественного и иностранного производства в пределах каждой фармакотерапевтической подгруппы лекарственных препаратов. Проанализировано ценовой диапазон, рассчитан коэффициент ликвидности для препаратов данной категории.

**Ключевые слова:** кортикостероиды, мягкие лекарственные формы, мониторинг цен, маркетинговые исследования.

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