

UDC 615.2:616.5

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To cite this article: Sakhanda I., Lekhnitska S., Hala L. (2024). Vyvchennia asortymentu i dostupnosti preparativ vitaminu D3 na farmatsevychnomu rynku Ukrainy [The study of the range and availability of vitamin d 3 preparations in the pharmaceutical market of Ukraine]. *Fitoterapiia. Chasopys – Phytotherapy. Journal*, 4, 182–189, doi: <https://doi.org/10.32782/2522-9680-2024-4-182>

THE STUDY OF THE RANGE AND AVAILABILITY OF VITAMIN D 3 PREPARATIONS IN THE PHARMACEUTICAL MARKET OF UKRAINE

Actuality. The article studies the range and availability of Vitamin D3 preparations and main groups of consumers of vitamin D 3 drugs in pharmaceutical market of Ukraine. The Vitamin D has become a topic of interest during the COVID-19 pandemic because of its potential role in maintaining immune function. Some studies have shown that vitamin D can help regulate the immune response and reduce the risk of respiratory infections. Vitamin D3 helps regulate the absorption of calcium and phosphorus, which are essential for maintaining healthy bones, teeth, nails and hair. Additionally, vitamin D has been linked to reducing the risk of certain chronic diseases such as osteoporosis, diabetes, and some types of cancer. Maintaining adequate levels of vitamin D is important for overall health and well-being.

The aim of the study – to study the volume of the range of medicines containing Vitamin D3 in the pharmaceutical market of Ukraine, determine the main groups of consumers of Vitamin D3, to analyze the structure of the commercial names of Vitamin D3 preparations as the identifiers that help medicine's consumers to navigate the assortment and contribute to increasing medicine sales.

Materials and methods. The first part of the study contains analysis of the Compendium of Registered generic drugs containing Vitamin D 3 on the Ukrainian market from 2020 to 2023, also conducted a survey of 100 patients during the third quarter of 2024 to determine the main groups of consumers of the Vitamin D 3 preparations and included the linguistic analyses of the commercial names of Vitamin D3 preparations as the linguistic identifiers that help drug's consumers to navigate the assortment and contribute to increasing drug sales. Data processing was carried out using statistical and mathematical methods.

Research results. The rapid development of the pharmaceutical market in Ukraine has led to the emergence of a large number of generic drugs and as a result, over the period from 2020 to 2023, the volume of assortment of pharmaceutical market of Ukraine increased. The Vitamin D3 (Cholecalciferolum) is a commonly manufactured pharmaceutical and nutritional supplement ingredient, and numerous companies produce it worldwide. The main range of Vitamin D3 preparations, commercial names, manufacturer companies and dosage forms were determined. It was conducted a graphic division between foreign and domestic manufacturers of medicines, synthetic and plant origin and variety of dosage forms. The survey showed the ratios of Vitamin D3 consumers by gender, age, educational level, place of residence etc. The main factors influenced on motivation of the consumers in choosing the preparation: doctor's recommendation, manufacturing companies, price etc. Analysis of the prevalence of commercial names showed that the most commonly used drugs, in the names of which there was an indication of the letter designation of vitamin D3. In order to facilitate identification and cause positive associations among drug users and promote increased drug sales, the names of manufacturing companies are often used as linguistic identifiers.

Conclusion. During the study, the market of Vitamin D3 preparations was analyzed. Due to the analysis of the pharmaceutical market of Ukraine 27 registered trade names of such drugs were identified. The study included an analysis of the origin and composition of the active ingredients, release forms and types of dosage form. The results of this study indicate a predominance of domestic production, as well as a large selection of drugs of synthetic origin, the main type of which are capsules. The survey of consumers groups demonstrated that there were fewer men which amounted to 19% and 81%, in accordance. The age range from 18 to 60 years, and the average age was 39 ± 1.2 years. Most patients followed the recommendations of the doctor, the rest noted deviations from the proposed treatment because of the lack of money. The analysis of the prevalence of commercial names showed that the most commonly used drugs, in the names of which there was an indication of the letter designation of vitamin D3, that help drug's consumers to navigate in the assortment of preparations.

Key words: Vitamin D3, immune support, consumer's motivation, pharmaceutical market, linguistic identifiers.

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Бібліографічний опис статті: Саханда І., Лехніцька С., Гала Л. (2024). Вивчення асортименту і доступності препаратів вітаміну D3 на фармацевтичному ринку України. *Фітотерапія. Часопис*, 4, 182–189, doi: <https://doi.org/10.32782/2522-9680-2024-4-182>

ВИВЧЕННЯ АСОРТИМЕНТУ І ДОСТУПНОСТІ ПРЕПАРАТІВ ВІТАМІНУ D3 НА ФАРМАЦЕВТИЧНОМУ РИНКУ УКРАЇНИ

Актуальність. У статті йдеться про наявний на фармацевтичному ринку України асортимент та доступність препаратів вітаміну D3, а також характеристику груп споживачів препаратів вітаміну D3. Вітамін D привернув увагу під час пандемії COVID-19 через його потенційну роль у підтримці імунної функції. Деякі дослідження показали, що вітамін D може допомогти регулювати імунну відповідь і знизити ризик респіраторних інфекцій. Вітамін D3 допомагає регулювати засвоєння кальцію і фосфору, які необхідні для підтримки здорових кісток, зубів, нігтів і волосся. Окрім того, наявність в організмі достатньої кількості вітаміну D зменшує ризики розвитку деяких хронічних захворювань, таких як остеопороз, діабет і деякі види раку. Підтримка необхідного рівня вітаміну D в організмі людини важлива для загального здоров'я і благополуччя.

Мета дослідження. Вивчити обсяг асортименту лікарських засобів, які містять вітамін D3, на фармацевтичному ринку України, визначити основні групи споживачів вітаміну D3, проаналізувати структуру комерційних найменувань препаратів вітаміну D3 як лінгвістичних ідентифікаторів, які допомагають споживачам препаратів орієнтуватися в асортименті і сприяють збільшенню продажів лікарських засобів.

Матеріал і методи. Перша частина дослідження містить аналіз зареєстрованих генеричних препаратів, які містять вітамін D3, на ринку України з 2020 по 2023 р., а також проведено опитування 100 пацієнтів протягом третього кварталу 2024 р. для визначення основних груп споживачів препаратів вітаміну D3 і сформовано лінгвістичний аналіз комерційних назв препаратів вітаміну D3 як ідентифікаторів, які допомагають споживачам препаратів орієнтуватися в асортименті та сприяють збільшенню продажів ліків. Обробка даних здійснювалася з використанням статистичних і математичних методів.

Результати дослідження. Стрімкий розвиток фармацевтичного ринку в Україні призвів до появи великої кількості генеричних препаратів, і в результаті за період із 2020 по 2023 р. обсяг асортименту фармацевтичного ринку України збільшився. Вітамін D3 (Cholecalciferolum) є досить поширеним серед виробників фармацевтичних і харчових засобів, і, як наслідок, значна кількість компаній у всьому світі виготовляє даний препарат. Був визначений основний асортимент препаратів вітаміну D3 із зазначенням комерційних назв, компаній-виробників та лікарських форм. Проведений аналіз відсоткового співвідношення щодо визначення походження компаній виробників (іноземні чи вітчизняні), лікарської сировини (синтетична чи рослинна), приналежності до лікарських форм. Дослідження показало співвідношення груп споживачів вітаміну D3 за статтю, віком, рівнем освіти, місцем проживання тощо. Чинники, які впливають на мотивацію споживачів під час вибору препарату: рекомендації лікаря, компаній-виробників, ціна і т. д. Аналіз поширеності комерційних назв показав, що найбільш часто використовувані препарати, у назвах яких була вказівка на літерне позначення вітаміну D3. Щоб полегшити ідентифікацію та викликати позитивні асоціації серед споживачів лікарських засобів та сприяти збільшенню продажів препаратів, назви компаній-виробників часто використовуються як лінгвістичні ідентифікатори.

Висновок. У ході дослідження було проаналізовано ринок препаратів вітаміну D3. Завдяки аналізу фармацевтичного ринку України виявлено 27 зареєстрованих торгових назв даних препаратів. Дослідження включало аналіз походження та складу активних інгредієнтів, форм випуску та видів лікарської форми препаратів.

Результати цього дослідження свідчать про перевагу препаратів вітчизняного виробництва, а також про великий вибір препаратів синтетичного походження, основним видом лікарської форми яких є капсули. Опитування груп споживачів показало, що чоловіків було менше, ніж жінок, що становило відповідно 19% і 81%. Віковий діапазон респондентів – від 18 до 60 років, а середній вік – $39 \pm 1,2$ року.

Більшість пацієнтів дотримувалися рекомендації лікаря, інші відзначали відхилення від запропонованого лікування через брак коштів. Аналіз поширеності комерційних назв показав, що найбільш часто споживачі використовували препарати, у назвах яких була вказівка на літерне позначення вітаміну D3, що допомагає споживачам орієнтуватися в асортименті препаратів.

Ключові слова: вітамін D3, імунна підтримка, мотивація споживачів, фармацевтичний ринок, мовні ідентифікатори.

Introduction. Actuality. Consumption of vitamins is essential for maintaining overall health and well-being. It is important to consume a variety of vitamins through a balanced diet that includes fruits, vegetables, whole grains, lean proteins, and dairy products. Vitamin supplements can be used to fill any gaps in a person's diet, but it is always best to get vitamins through natural sources whenever possible.

Absorption of calcium and phosphorus, which are essential for maintaining healthy bones, teeth, nails and hair. It also plays a key role in supporting the immune system, muscle function, and overall cardiovascular health. Additionally, vitamin D has been linked to reducing the risk of certain chronic diseases such as osteoporosis, diabetes, and some types of cancer. It is primarily obtained through exposure to sunlight and can also be found in certain foods and supplements. Maintaining adequate levels of vitamin D is important for overall health and well-being. Vitamin D has been a topic of interest during the COVID-19 pandemic due to its potential role in supporting immune function. Some studies have suggested that vitamin D may help regulate the immune response (Coussens A.K. , 2017; Gruber-Bzura B.M., 2018; Gombart A.F. et al., 2020) and reduce the risk of respiratory infections. There is evidence from several preclinical and clinical studies that vitamin D supplementation can attenuate viral respiratory tract infections. Vitamin D deficiency is common in most North American and European countries (Griffin, T. P. et al., 2020; Cashman, K. D. et al., 2016). The studies of Gaudio A., Suilli A., Cangiano B. have suggested that maintaining adequate levels of Vitamin D may help support immune function, which could potentially have a positive impact on the body's response to COVID-19 (Gaudio, A. et al. 2021; Sulli, A. et al., 2021; Cangiano, B. Et al., 2020).

The scientists F.J. Navarro-Triviño et al. found the particular interest of the latest discoveries about the role of vitamin D in skin diseases such as lupus erythematosus, ichthyosis, atopic dermatitis, hidradenitis suppurativa, acne, alopecia areata, melanoma and nonmelanoma skin cancer. The authors concluded that Vitamin D has a multiplicity of functions on the cellular level in the many organs and tissues where there are VDR (vitamine D receptor). The vitamin D receptor is an endocrine member of the nuclear receptor superfamily for steroid hormones and binds the biologically most active Vitamine D metabolite. It would appear that this hormone is fundamental in dermatology, not only because it is synthesized in the skin, but also because of its multiple actions, which are reflected in the variety of diseases in which it appears to play a role (F.J. Navarro-Triviño et al., 2019). Besides more than 50 target genes of VDR have been identified that have a broad range

of actions including cellular proliferation and have an important role in the innate immune system as well as the intestinal microbiome (Erika C.Claud et al., 2020).

Moreover Vitamin D has been studied for its potential role in hair health and the prevention of certain hair diseases. Some research suggests that vitamin D may be beneficial in reducing the risk of age-related hair degeneration (AMD) that can lead to increase of hair loss. The researcher Fawzi et al. evaluated Vitamin D level in patients of alopecia areata (AA) and androgenetic alopecia (AGA) where blood biopsies were taken from them. It was found that Vitamin D levels in the scalp and blood of patients with AGA and AA were significantly lower (Fawzi MM et al. 2016). A study conducted by Sanke et al. suggests that vitamin D may play a role in the premature onset of androgenetic alopecia. Hence, vitamin D levels should be assessed in AGA patients (Sanke S. at al., 2020). Scientists Conic et al. also found lower serum vitamin D levels in patients with AGA compared to controls (Conic R.R. et al., 2021). A case-control study by Jun Zhao et al. aimed to evaluate serum vitamin D levels in Chinese patients with different types of alopecia, including AGA. The correlation between low serum vitamin D level and male AGA was found to be statistically significant ($P=0.0005$) (Zhao J. et al., 2020). In a Turkish study conducted by Saraç G. et al., a correlation was again found between AGA, telogen effluvium, and low serum vitaminD (Saraç G. et al., 2018). Researcher Danane A. et al. evaluated the same factors in the Indian hospital, and around 82% of AGA patients were found to be vitamin D deficient (Danane A. et al., 2021). In another study including 30 patients of AGA and 30 age-matched healthy controls, the mean serum vitamin D of patients with AGA was 37.1ng/ml compared to controls having 44.2mg/ml level. This is statistically significant ($p=0.02$) (Tahlawy S.M. et al., 2021). Overall Vitamin D deficiency has been linked to various hair diseases, including hair loss and alopecia. The studies have suggested that maintaining adequate vitamin D levels may help in alleviating symptoms of hair loss. It was found that vitamin D deficiency was common among AGA patients. The direct mechanisms in which vitamin D may affect AGA development is through its high expression in the hair follicle stem cells and the involvement of vitamin D receptor (VDR) in regulating hair cycling in all but the first phase. Vitamin D can indirectly affect the occurrence and development of AGA by regulating the expression of some sex hormones through receptor-mediated steroidogenic enzyme activation (Chen Q. et al., 2023).

The low containing of vitamin D in most foods poses a risk of deficiency of this vitamin, the development of which becomes even more likely than allergies to milk

protein, lactose intolerance and vegetarianism (Rebelos, E. et al. 2023). The reasons for the reduced level of vitamin D are the excessive use of creams with high UV protection, urbanization associated with reduced time spent outdoors, environmental problems (smog in cities), short world time (in our latitudes – 5 months of adequate world wave), dietary disorders, age over 70 years, acute and, especially, chronic liver and kidney diseases, taking drugs (corticosteroids, anticonvulsants). Vitamin D hypovitaminosis is treated with vitamin D preparations, which today are on the market in Europe, America and Asia and, particular, in Ukraine are presented in the form of oil and water solutions, as well as in the form of vitamin D vitamin complexes (Chekman I.S., Gorchakova N.A. et al., 2017).

According the recommendations of USA National Institutes of Health the dietary necessity for Vitamin D intakes of 600 IU/day for adults in age 18 to 70 years. For example, the United Kingdom Scientific Advisory Committee on Nutrition recommends intakes of 10 mcg (400 IU)/day (National Institutes of Health, 2024) It's always best to consult with a healthcare provider before starting any supplementation regimen.

According to the Ministry of Health of Ukraine the recommended daily dosage of Vitamin D for adults is 400 IU in age 18 to 70 years (<https://guidelines.moz.gov.ua/documents/3354>). However, for the treatment of a specific condition of insufficiency of Vitamin D4, it's important to consult with a healthcare professional before starting any supplementation regimen. Vitamins and supplements can have different effects on individuals based on their health status and specific needs.

The Vitamin D refers to a group fat soluble secosteroids and has two major forms of Vitamin D: Vitamin D2 (Ergocalciferolum) and Vitamin D3 (Cholecalciferolum). The last is synthesized in the skin of humans exposing to ultraviolet B (UVB) radiation from sunlight. It's also found in the some anomal-based foods and is the form commonly used in Vitamin D supplements.

The aim – to study the volume of the range of medicines containing Vitamin D3 in the pharmaceutical market of Ukraine, determine the main groups of consumers of Vitamin D3, to analyze the structure of the commercial names of Vitamin D3 preparations as the linguistic identifiers that help drug's consumers to navigate the assortment and contribute to increasing drug sales.

Materials and methods. The first part of the study contained analysis of the Compendium of Registered generic drugs containing Vitamin D 3 on the Ukrainian market from 2020 to 2023, also conducted a survey of 100 patients during the third quarter of 2024 to determine the main groups of consumers of the Vitamin D 3 preparations and included the linguistic analyses of the commercial

names of Vitamin D3 preparations as the identifiers that help medicine's consumers to navigate the assortment and contribute to increasing medicines sales. Data processing was carried out using statistical and mathematical methods.

Results and discussion. The rapid development of the pharmaceutical market in our country has led to the emergence of a large number of generic drugs (Nehoda T. et al., 2020). Vitamin D3 (Cholecalciferolum) is a commonly manufactured pharmaceutical and nutritional supplement ingredient, and numerous companies produce it worldwide. Some of the major manufacturers and suppliers of Vitamin D3 include: Zhejiang Garden Biochemical High-Tech (China); Royal DSM (Netherlands); BASF (Germany); Fermenta Biotech Limited (India); Zhejiang Medicine Co., Ltd. (China); Nestlé Health Science (Switzerland); GlaxoSmithKline (GSK) (United Kingdom); Teva Pharmaceuticals (Israel); Merck (United States); Sigma-Aldrich (now part of MilliporeSigma, a subsidiary of Merck). O the market of Ukraine are present the following companies: BASF (Germany), Nestlé Health Science (Switzerland), GlaxoSmithKline (GSK) (United Kingdom), Teva Pharmaceuticals (Israel), Merck (United States), Polski Lek (POLAND), Natur Produkt Pharma (Poland).

Also some of the major manufacturers of the Vitamin D3 preparations at the market of Ukraine include: Country Life, NOW FOODS, NOW INTERNATIONAL, EURO PLUS, ILAN PHARM, Golden-Pharm, Histomed, Zdorovja FK, Krasota I Zdorovje, Polski Lek, Natur Produkt Pharma, Farmakom, UA-PHARM, LLC PHARMIC LTD, VP Laboratory LTD, LLC EUROLEK-UKRAINE, PJSC PF VIOLA, GREEN-VISA, Puritan's Pride, KRKA, Artsnaimittel GmbH, Pharmaceutical Works POLPHARMA S.A, Technolog, POLPHARMA, KYIV VITAMIN PLANT, PJSC HALYCHPHARM.

Based on the analysis of the data that were available on August 2024 from the State Register of Medicines of Ukraine, it was found that 27 medicines are registered in the Ukraine (table 1).

Firstly, was conducted a graphic division between foreign and domestic manufacturers of medicines.

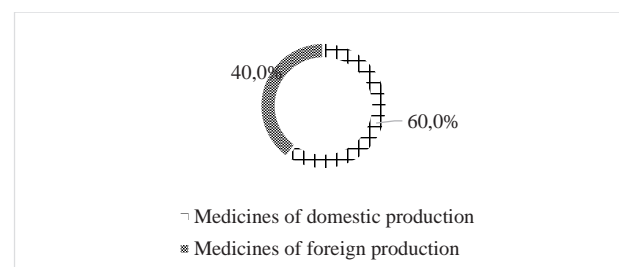


Fig. 1. Analysis of Vitamin D3 medicines, domestic and foreign production

Vitamine D 3 medicines registered in Ukraine

№ з/п	Medicine	Manufacturer, country	Form of release
1	D3-VITAMIN 2000 IU Dr.Theiss	Natur Produkt Pharma Sp.z.o.o, Poland	Coated tablets
2	NOW FOODS BITAMIN Д-3 2000 IU	NOW INTERNATIONAL, USA	Soft capsules
3	Vitamin D3	Farmakom, Ukraine	Capsules
4	Vitamin D3 Apnas Natural	UA-PHARM, Ukraine	Chewing pastilles
5	<i>Vitamin D3 2500 IU</i>	Golden-Pharm, Ukraine	Capsules
6	<i>Vitamin D3 2500 IU</i>	EURO PLUS, Ukraine	Tablets
7	<i>Vitamin D3 2000 IU</i>	LLC PHARMIC LTD, Ukraine	Tablets
8	<i>Vitamin D3 Ultracap</i>	<i>Polski Lek Sp. z o.o.</i> , Poland	Capsules
9	VPLab UltraVit Vitamin D3 600 IU	VP Laboratory LTD, Great Britain	Capsules
10	Vitamin D3 VITAVIT	BEAUTY AND HEALTH, LTD, Ukraine	Drops
11	Vitamin D3 2000 IU	LLC EUROLEK-UKRAINE, Ukraine	Tablets
12	Vitamin D3	PJSC PF VIOLA, Ukraine	Capsules
13	Vitamin D3	«Zdorovyе», Ukraine	Tablets
14	Vitamin D3	ILAN FARM Ltd, Ukraine	Tablets
15	Vitamin D3	Puritan's Pride, USA	Capsules
16	Vitamin D3	GREEN-VISA, Ukraine	Capsules
17	Vitamin D3	Histomed, Ukraine	Tablets
18	Vitamin D3 1000 IU KRKA	KRKA, Slovenia	Tablets
19	D3 Krapelka	<i>Teva, Poland</i>	Drops
20	Dekristol 1000 IU	Artsnaimittel GmbH, Germany	Tablets
21	Coledan	WORLD MEDICINE ILAC SAN. VE TIC. A.S, Turkey	Oral drops
22	Olidetric D3 Forte	Pharmaceutical Works POLPHARMA S.A., Poland	Soft capsules
23	Olidetric Pro	Pharmaceutical Works POLPHARMA S.A., Poland	Soft capsules
24	AQUA VIT – D3	Technolog, Ukraine	Oral solution
25	AQUADETRIM®VITAMINUM D3	<i>POLPHARMA, Poland</i>	Oral solution
26	VIDEYIN	KYIV VITAMIN PLANT, Ukraine	Capsules
27	VITAMIN D3	PJSC HALYCHPHARM, Ukraine	Tablets

Reviewing the information presented in fig. 1, it is worth noting that most of the Vitamin D3 preparations are domestic origin – 60%.

The next is the analysis of the relationship of drugs by the origin of biologically active substances (fig. 2).

Analyzing the information presented in fig. 2, we found that most manufacturers of the proposed medicines mainly specialize in the production of drugs of synthetic origin (99%).

According to the information in fig. 3 there are various dosage forms of Vitamine D3 medicines, such as tablets (33%), oral solutions (7.4%), capsules (41%), drops

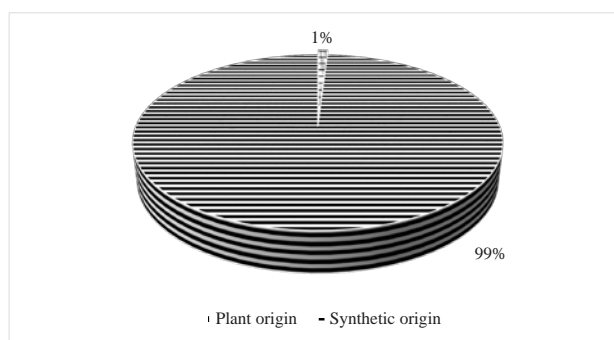


Fig. 2. The analysis of Vitamin D3 medicines origin, plant and synthetic

(14%), chewing pastilles (3.6%) in the pharmaceutical market of Ukraine. It was found that the capsules were the most common dosage form. The use of the capsules form has the advantage that the components do not react chemically, which allows combining medicinal substances that may be incompatible in physicochemical properties.

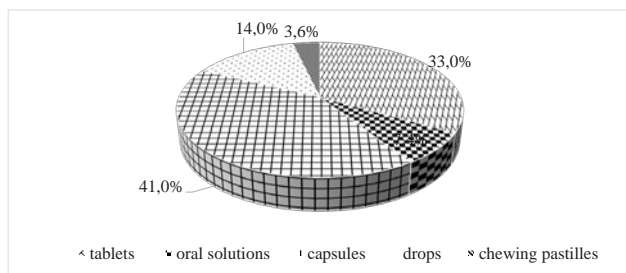


Fig. 3. The analysis of Vitamin D3 medical dosage forms

An analysis of 100 questionnaires from patients filled out who have chosen the Vitamin D3 preparation. Analyzing the data presented in table 2 there were fewer men in the study sample – 19 and women – 81, which amounted to 19% and 81%, in accordance. The age range from 18 to 60 years, and the average age was 39 ± 1.2 years. Most patients (69 %) followed the recommendations of the doctor, the rest noted deviations from the proposed treatment. Among these patients, 9% were motivated by non-compliance with prescriptions due to their own reluctance, 56% – the lack of financial capabilities (therefore they took more affordable

analogues) and 24% explained this by the fact that when buying in a pharmacy they recommended a similar drug with a different commercial name. The study of the educational level of patients showed that 39 % of respondents had higher education, 37% – secondary special and 24% – general secondary education. The analysis of place of residence showed that urban is 71% and rural – 19%. A study of the structure of alternatives of Vitamin D3 drugs revealed that 56% of patients took one preparation, 30% – two preparations, 14% – three or more preparations.

Analyzing the structure of actually used drugs, with various international names (IN), has been shown that the most often preferred drugs with the possession of the letter designation of vitamin D3, namely, 87%. The most of names of medicines are traditionally formed on the basis of word-forming elements of Latin and Greek origin. These languages have great word-forming potential, since the meaning of individual bases, prefixes, suffixes are unchanged. Latin and Greek word-forming elements used as internationalisms make it possible to form new names for medicinal substances. In comparison to other names for medicines, vitamins have a double names. The first appeared designations of vitamins in separate letters of the Latin alphabet (A, B, C, D, E, etc.), over time, detailed verbal names appeared that replace letter designations (Lekhnitska S.I., 2007). The analysis of the prevalence of commercial names showed that the most commonly used drugs, in the names of which there was an indication of the letter designation of vitamin D3 (90%), the verbal designation of vitamin Detri – (9%) and others (Coledan,

Table 2

Characteristics study participants consuming Vitamin D 3 preparation, 2024

Variable	Number of participants	Consumption of vitamin D preparation	
		Yes	No
Sex, n%			
Men	19 (19%)	7 (7%)	12 (12%)
Women	81 (81%)	62 (62%)	19 (19%)
Age, n%			
18-25	6	4 (4%)	2 (2%)
26-30	26	20 (20%)	6 (6%)
31-35	31	29 (29%)	2 (2%)
36-40	18	11 (11%)	7 (7%)
41-50	17	5 (5%)	12 (12%)
51-60	2	0 (0%)	2 (0%)
Educational level, n%			
Secondary school	24	9 (9%)	15 (15%)
Secondary special	37	25 (25%)	12 (12%)
High	39	35 (35%)	4 (4%)
Place of residence, n%			
Urban	71	57 (57%)	14 (14%)
Rural	29	12 (12%)	17 (17%)

Decap, Oli-). The 6% of commercial names contain an indication with the name of the vitamin D3 manufacturing company. In order to facilitate identification and cause positive associations among drug consumers and promote increased drug sales, the names of manufacturing companies are often used as linguistic identifiers.

Conclusions

As a result of the study was found that the Vitamin D is a crucial nutrient that plays several important roles in the body and including the prevalence of vitamin D3 deficiency in the diet and the proven physiological role of vitamin D3 in the human body, there is a need for vitamin correction with D3 drugs. It also plays a key role in supporting the immune system, muscle and bone function, the health of skin, hair, nails and teeth. During the study, the market of Vitamin D3 preparations was analyzed. Due to the analysis of the pharmaceutical market of Ukraine 27 registered trade names of such drugs were identified. The study included an analysis of the origin and composition of the active ingredients, release forms and types of dosage form. It is noted that the majority of drugs (60%) are represented by domestic manufacturers, mainly of synthetic origin (99%),

and the form of release is capsule (41%). The results of this study indicate a predominance of domestic production, as well as a large selection of drugs of synthetic origin, the main type of which are capsules. The survey of consumers groups demonstrated that there were fewer men in the study sample – 19 and women – 81, which amounted to 19% and 81%, in accordance. The age range from 18 to 60 years, and the average age was 39 ± 1.2 years. Most patients (69 %) followed the recommendations of the doctor, the rest noted deviations from the proposed treatment because of the lack of the money. Among these patients, 9% were motivated by non-compliance with prescriptions due to their own reluctance, 56% – the lack of financial capabilities (therefore they took more affordable analogues) and 24% explained this by the fact that when buying in a pharmacy they recommended a similar drug with a different commercial name. The analysis of the prevalence of commercial names showed that the most commonly used drugs, in the names of which there was an indication of the letter designation of vitamin D3 (90%), that help drug's consumers to navigate in the assortment of preparations.

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Стаття надійшла до редакції 10.07.2024.

Стаття прийнята до друку 03.10.2024.

Конфлікт інтересів: відсутній.

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